SOCRATES' ANCESTOR

Architecture and Emerging Order in Archaic Greece

Indra Kagis McEwen
School of Architecture
McGill University, Montreal

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Abstract

Socrates claimed Daeadalus, the mythical first architect, as his ancestor. Taking this as a point of departure, the thesis explores the relationship between architecture and speculative thought, and shows how the latter is grounded in the former. A detailed examination of the Anaximander fragment, the earliest surviving record in Western philosophy, is considered in relation to Anaximander's built work. This three-part cosmic model which included a celestial sphere, the first map of the world, and a sun clock (the **gnōmōn**), reveals the fragment to be a theory of the work in that the cosmic order Anaximander as the first to articulate was discovered through the building of the model. The model is seen as comparable to a **daidalon**, a creation of Daedalus, whose legend reflects the importance of craft in the self-consciousness of archaic Greece where the **kosmos** (order) of civilization were seen as having emerged with the **kosmos** allowed to appear through the making of the artifact. Archaic self-consciousness is further examined through the emergence of the the Greek city-state (the **polis)** and in the building of the first peripteral temples, both of which are revealed as necessary antecedents to birth of theory, understood as the wondering admiration of the well-made thing.

Resume

Socrate nommait Dedale, dans la legende grecque le premier architecte, son ancêtre. Prenant ceci comme point de depart, cette these explore la relation entre l'architecture et la pensee speculative, demontrant que la pensee de l'occident est fondee dans l'architecture. La these examine en detail le fragment d'Anaximandre, le document le plus ancien de la philosophie occidentale, en relation avec ce qu'Anaximandre a construit. Cette construction, un modele cosmique de trois parties comprenant un globe celeste, la premiere carte geographique de la terre, et un cadran solaire (le **gnōmōn**), revele que l'ordre cosmique, dont la formulation d'Anaximandre etait la premiere, a ete devoile a travers la construction meme du modele. Ce modele est comparable a un **daidalon**, une creation de Dedale, dont la legende reflete importance de l'artisanat dans la perception que la Grece archaique se faisait d'elle-même: un perception qui voulait que le **kosmos** (l'ordre) de la civilization ait paru a travers le **kosmos** decouvert dans la fabrication artisanale des choses. Dans les VIIIeme et VIIeme siecles, l'emergence de la cite grecque (la **polis**), et la construction des premiers temples peripteres, demontrent la même perception archaique comme etant l'antecedent necessaire a la naissance de la theorie, consideree comme l'emerveillement face a la chose bien faite.

Pour Jean, Jean-Sabin, Marianne et Jeremie

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PREFACE

The horizon recedes as we approach it. It is perhaps therefore inevitable that the near-recklessness of undertaking to explore a territory as vast as the one I have undertaken to explore has resulted in only a single certainty: the knowledge that I have broached more questions than I am able to answer. To those who helped me avoid losing myself entirely, I owe my thanks.

To Dr. Alberto Perez-Gomez, for his trust in my earliest intuitions, for his support throughout, and especially for his assistance both in the initial, focussing, and final, clean-up, stages.

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Bibliographical Note

The system adopted for footnoting and bibliography is not the traditional one, although it has become common in many recent scholarly publications. The footnotes list works by the last name of the author only, with a date if more than one work by the author appears in the bibliography. The bibliography lists the works as they are referred to in the footnotes (last name, or last name plus date). Each listing is then followed by the full bibliographical reference.

I have used standard translations of the Greek classics, relying principally on the Loeb Classical Library. Abbreviations follow accepted usage.

The transliteration of Greek words also follows accepted usage. Greek words appear in bold face, in order to distinguish them from other foreign words, which are underlined, and from italics.

I INTRODUCTION: SOCRATES' ANCESTOR

In Plato's dialogue, Euthyphro, where Socrates questions Euthyphro, who is prosecuting his own father for murder, on the nature of holiness and unholiness, of piety and impiety, justice and injustice, Socrates succeeds, as he so often does, in completely confusing his interlocutor.

> Euthyphro: I really do not know, Socrates, how to express what I mean. For somehow or other our arguments, on whatever ground we rest them, seem to turn round and walk away from us.
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> Socrates: Your words, Euthyphro, are like the handiwork of my ancestor Daedalus; and if I were the sayer or propounder of them, you might say that my arguments walk away and will not remain fixed because I am a descendent of his. . . (For your) notions . . . show an inclination to be on the move. . . .
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> Euthyphro: Nay, Socrates, I shall still say that you are the Daedalus who sets arguments in motion; not I, certainly, but you make them move or go round . . .
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> Socrates: Then I must be greater than Daedalus: for whereas he only made his own inventions to move, I move those of other people as well. And the beauty of it is, that I would rather not. For I would give the wisdom of Daedalus (**Daidalou sophia**) . . . to be able to detain them and keep them fixed.[1]

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[1]. Euthyphro, 11c-e. The Jowett translation renders the **sophia** of Daedalus as his wisdom. It is not my intention here to attempt to define wisdom, but it should be noted that the earliest usages of **sophia**, in Homer, Herodotus and even later, had to do, specifically, with skill in craft -- especially in carpentry, but also in other crafts. If Daedalus was wise, he was so in this specific sense.

Daedalus, of course, was the mythical first architect[2] who built not only the automata referred to in this passage, but also the Labyrinth and the **choros**[3], or dancing-floor, at Knossos as well as fortified city in Sicily. Socrates, whose father, it was said, was either a sculptor or a stonemason[4], claimed Daedalus as his ancestor[5], and in so doing, I would contend, claimed an ancestral blood tie between architecture and speculative thought. To explore the nature of this tie is the purpose of this thesis. Why does it seem important to do so?

For the past century, the dawn of Western thought -- considered in the twentieth-century twilight of its apparent decline -- the "discovery of the mind", as Bruno Snell has called it, the "theoretical event" or "birth of spiritual Europe" in Husserl's terms, has been the subject of intensive study. Much of the discussion, to which philosophers, cultural historians, classical philologists and anthropologists have all contributed, has naturally focussed on the culture of archaic Greece and on the thought of the pre-Socratic philosophers. One approach, whose hidden agenda has been a systematic secularization, has

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2. See Frontisi-Ducroux, and Perez-Gomez.

3. Il. XVIII.590.

4. Oxford Classical Dictionary. His mother, Phaenarete, was a midwife.

5. See also Acibiades, 121a.

concentrated on tracing pre-Socratic thought first to mythical, then to ritual or tribal roots. For all the brilliance of its scholarship, this is an approach that has tended to result in a "nothing but" kind of assessment, of which F.M. Cornford's From Religion to Philosophy[6] is an early example: an assessment which ultimately begs the very questions it purports to answer. The effort to account for the mystery of human existence by eliminating it through the reduction of its articulations in myth and speculation to the evolutionary products of "nothing but" tribal custom still leaves unaccounted for the mystery at the very core of tribal custom itself.

If this line of thinking has dealt with the emergence of Western thought by tracing supposed effect back to supposed evolutionary cause, another line of thinking has concentrated on the phenomenon of emergence, the event,

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6. Reductive qualifiers like "nothing but" or "merely" appear on almost every other page of Cornford's From Religion to Philosophy. For example (p. 35) the river Styx is "nothing but the recoil or negative aspect of power. . . . (Styx) is only another form of Moira", and (p. 36) "The personal God of religion and the impersonal Reason of philosophy merely reenact as 'dispensers' . . . that old arrangement called Moira which, as we saw, was really older than the Gods themselves and free from any implication of design or purpose". Moira, in turn (p. 54) "is simply a projection, or extension of Nomos (law) from tribal group to the elemental grouping of the cosmos". And if I seem to be flogging a long-dead horse (From Religion to Philosophy was, after all, first published in 1912), in his recent work, the German classicist Walter Burkert continues to adopt tactics of a similar nature. As the French anthropologist Jean-Louis Durand has remarked "on ne sort pas du frazerisme" (Durand, p. 4).

itself. To this second school belong thinkers such as Heidegger and the philosopher of history, Eric Voegelin. For them, especially in their later work, the essential thing has been to preserve the mystery of human existence against erosion by "nothing but", through a study of the pre-Socratics that has had as its chief aim the disclosure of early Greek thinking as the West's first articulation of that mystery as a mystery. This is a disclosure that not only mitigates the vision of early Greek thinkers as either highly-evolved tribesmen on the one hand, or as underdeveloped nuclear physicists on the other, (this last, to oversimplify matters, being the second half of the Cornford kind of argument). It is also a disclosure that reveals fresh possiblities for being in the present twilight. For if the assessment of the first Greek thinkers as tribesmen/physicists has affirmed, and even encouraged, the scientism of this century, then disclosure of the awareness of mystery inherent in the articulations of emerging Greek thought suggests an alternative affirmation.

Plato, in the Euthyphro, evokes a link between

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7. Although Eric Voegelin has condemned Heidegger as "that ingenious gnostic of our own time" (Voegelin 1968, p. 46), I would claim that, Voegelin's theological bent apart, the concern with emergence (in Voegelin, history as emerging consciouness: Order and History Vols. IV and V especially; in Heidegger, Being as revealed through emergence in the thought of the pre-Socratics) links the two thinkers at a very fundamental level.

architecture and such thought. However, it would not only be foolish but also pointless to interpret this link as evolutionary or causal -- to claim that architecture, taken as the embodiement of ritual[8], gave rise to philosophy, and so to fall into the "nothing but tribal custom" trap alluded to earlier. Rather, as I shall argue, the awareness embodied in the emergence of architecture in Greece shares a blood tie with the awareness that first becomes explicit in the speculative thought of the sixth century B.C. As equivalent manifestations of an emerging Western consciousness, the "architectural event", if it may be so called, and the "theoretical event" can be understood as related moments in a single occurence. It is of particular interest that the architectural event, chronologically speaking, came first, not so much because the roots of Greek thinking are to be unearthed in Greek architecture as such, but because, if the consciousness that is the hallmark of Husserl's "spiritual Europe" first emerged in architecture, it is perhaps in <u>this</u> moment of the emergence of western consciousness that the possibilities for alternative affirmations are most readily revealed.

In the passage cited earlier, Socrates sets arguments in motion, just as, according to legend, his ancestor

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8. That architecture is an embodiment of ritual has been argued, among others, by Joseph Rykwert, Alberto Perez-Gomez, and, insofar he demonstrates the constituent parts of Greek temples to be the parts of sacrifical victims, by George Hersey.

Daedalus had set statues in motion. But Socrates' most ardent wish is to keep them still: he "would give the wisdom of Daedalus . . . to be able to be able to detain them and keep them fixed". This is a fifth-century aspiration, and the distance from the dawn of Greek thought is already considerable. In the Hippias Major[9], where Socrates says that the sculptors of his day would ridicule the works that earned Daedalus his fame, the inference is that moving statues are silly, just as in the passage cited the inference is that Euthyphro's circular arguments are silly. Knowledge is at odds with things that will not stay put, as a passage in the Meno[10], where Socrates once more evokes the creations of his ancestor, confirms:

> Meno:. . . I wonder that knowledge (**epistēmē**) should be preferred to right opinion (**doxa**) -- or why they should even differ.
>
> . . . .
>
> Socrates: You would not wonder if you had ever observed the images of Daedalus. . . . (which) require to be fastened in order to keep them, and if they are not fastened they will play truant and run away. . . . I mean to say that they are not very valuable possessions if they are at liberty, for they will walk off like runaway slaves; but when fastened, they are of great value, for they are really beautiful works of art . . . When they are bound, in the first place, they have the nature of knowledge; and in the secon place, they are abiding. And this is why knowledge is more honourable and excellent than true opinion, because fastened by a chain.

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9. 282a.

10. 97d-98a

As Françoise Frontisi-Ducroux has observed in her excellent study of the Daedalus legend, the expedient of binding these primitive Daedalean statues (**xoana**)[11] with cords or chains was a way of making the divine life in them manifest. Motion was life, and the animated life, the very divinity, of these images was best revealed by tying them down. For Plato, divinity, in so far as knowledge had divinity as its source and object, lay in fixity, and Plato's emphasis was on the bound state as such. In the culture of pre-philsophical Greece, divinity lay in animation, and **xoana** were bound, not because the fixed object was divine in its fixity, but rather the opposite. The emphasis was on the unbound, the animated, state: the chains that bound the cult statue harnessed a fearful, excessive, super-natural life only in order to disclose its presence.

The contrast here made is somewhat subtler than I have so far suggested it to be. In the case of Daedalus' **xoana**, the chaining of cult statues brought the divine into the realm of human experience; for Plato, the binding of true opinion with the chains of recollection (**anamnesis**)[12] brings

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11. Frontisi-Ducroux, p. 103 ff. The cult statue of Hera at Samos, for example, was a crudely-carved wooden **xoanon** which, except on feast days when it was "freed" to move about in sacred processions, was chained. Before taking the form of a **xoanon**, the cult image of Hera had been simply a plank (**sanis**). On **xoana** see also A.A. Donohue's exhaustive study.

12. Meno, 98a.

the divine into the realm of human knowledge. Plato's evocation of the animated cult statue reveals a detectable shift. In both cases the act of binding has as its purpose to bring the divine into the human sphere, but there is a shift, and the shift is a shift of emphasis from the primacy of motion to the primacy of fixity; from the primacy of experience to the primacy of the knowledge Plato calls **epistēmē**.

Between the two poles of movement and of fixity, of experience and of knowledge lies the phenomenon of the emerging Western consciousness, and to it, as Plato himself seems to imply, the Daedalus story holds an important key. But, as already noted, Plato and his overt concern for fixity is already some distance from the earliest Greek articulations of speculative thought, and it is to the only verbatim record of the very first such articulation that I would now like to turn. A discussion of Daedalus, and Daedalus' legendary creations will come after, to be followed in turn by a discussion of the emergence of the **polis** and of the peripteral temple.

II ANAXIMANDER AND THE ARTICULATION OF ORDER

Anaximander of Miletus[1], second after Thales of the so-called Ionian naturalists (**physiologoi**), is generally looked upon as the first real philosopher, and his thought seen as the watershed in the transition from myth to philosophy. Although Thales preceded Anaximander, and was, it is said, his teacher, Thales is seen more as a legendary sage[2] than a speculative thinker. The distinction is a slightly arbitrary one, however, cast as it is in the light of the modern disciplinary view of philosophy, and not only Thales, but Anaximander too, seem to have been active both politically and architecturally[3], as well as speculatively. Nevertheless, in the case of Anaximander, it is possible to piece together a cosmology -- the very <u>first</u> Western cosmology -- from Aristotle and the various commentaries, and this is something that, in the case of Thales, simply cannot be done. Moreover, not one word of Thales' own

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1. His dates, which are usually given as 610 to 546 B.C., with a <u>floruit</u> of about 560, coincide with the last years of Ionian colonization (Miletus was referred to as "the mother of colonies"), and in fact Anaximander himself is said to have led a colonizing expedition to Apollonia on the Black Sea (see Kirk and Raven, p. 100 ff.).

2. In the classical period, Thales was numbered among the so-called "seven sages" of archaic Greece, along with his contemporaries Solon the legislator and Epimenides the prophet.

3. Thales once changed the course of a river (Hdt., I.75) and, as will be discussed in due course, Anaximander made the first Greek map of the known world, as well as a celestial sphere.

survives[4], whereas for Anaximander we have the B1[5] fragment from Simplicius' fifth-century A.D. commentary on the Physics of Aristotle, which, depending on how it is read, contains at least seventeen, or at most fifty-six, Greek words attributable to Anaximander himself. These seventeen to fifty-six words, coupled with the cosmology extrapolated from the commentaries, give a potentially coherent picture of Anaximander's world view, although it is one that continues to depend heavily on imaginative interpretation.

1. ANAXIMANDER B1

Charles H. Kahn's study of Anaximander cites Anaximander B1 in a somewhat longer form than is traditional, including more of Simplicius' surrounding text because, as he rightly argues, the quote needs all the contextual help available for a proper interpretation. Kahn

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4. Simplicius (in Phys. p. 23, 29 Diels) says that "he (Thales) is said to have left nothing in the form of writings except the so-called 'Nautical Star Guide'", whereas according to Diogenes Laertius (I.23), "he left no book behind; for the 'Nautical Star Guide' ascribed to him is said to be by Phokos, the Samian". Cf Kirk and Raven, p. 86. Although the authorship of the "Nautical Star Guide" must, in the light of conflicting evidence, be considered dubious, generally speaking, Simplicius, who has been be argued to have had in hand Theophrastus' **Physeōs doxai** as a source, is regarded to be a more reliable than Diogenes Laertius. Whether by Thales or not, the "Nautical Star Guide" did not survive, and even the earliest commentators seem not to have seen it.

5. By the Diels numbering, direct quotations are numbered "B" and indirect comments or elucidations numbered "A".

also argues convincingly that the direct quote from Anaximander (even allowing for the Aristotelian interpolations of Simplicius) is fifty-six words in length, rather than the traditional seventeen, and begins after "he says that (**legei**)", instead of beginning with the usual "according to necessity (**kata to chreōn**)". This is Kahn's translation for the passage he cites. For reasons that should become clear in due course, I shall later propose an amended reading for the square-bracketed direct quotation.

> Anaximander . . . declared the Boundless (**to apeiron**) to be the principle (**archē**) and element (**stoicheion**) of existing things (**ta onta**), having been the first to introduce this very term "principle" (**archē**). He says that (**legei**) ["it is neither water not any of the other so-called elements, but some different boundless nature (**hetera tis physis apeiros**), from which all the heavens arise and the **kosmoi** within them; out of those things (**ex hōn de**) whence is the generation for existing things (**ta onta**), into these (**eis tauta**) again does their destruction take place, according to what needs must be (**kata to chreōn**); for they make amends and give reparation to one another for their offence according to the ordinance of time (**kata tēn tou chronou taxin**)"], speaking of them thus in rather poetical terms. It is clear that having observed the change of the four elements he did not think it fit to make any one of these the material substratum, but something else besides these.[6]

As Kahn points out, the traditional reading of the fragment, from Aetius in the sixth century, through Nietszche and Diels in the nineteenth, to Burnet in the twentieth, has been that the Boundless (**to apeiron**) of the first part of the passage is the source out of which

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[6]. Cf. Kahn, p. 166.

(**ex hōn**), in the second part of the passage, existing things come to be, and into which (**eis tauta**) they also pass away, having made amends and given reparation to one another for their wrongdoing, "according to the ordinance of time". However, in this century it has been noted by Gregory Vlastos[7], among others, that the **ex hōn**, the "out of which", that introduces the second part of the passage is in the plural, whereas **to apeiron**, its alleged referent, is singular. This led Vlastos to postulate the Boundless as something "explicitly thought of as a plurality. . . . a compound of opposites"[8], which is difficult to make sense of both grammatically and speculatively. In a later article, and presumably as a direct consequence of this thinking, Vlastos makes Anaximander's **apeiron**, for him the limitless fund of a plurality of undifferentiated stuff and the source of differentiated "exisitng things", the speculative equivalent of Hesiod's **Chaōs**[9], which he also reads as an undifferentiated mixture. Vlastos had tended to oversimplify the issue. **Chaōs**, whose coming to be (**genesis**) in Hesiod's Theogony precedes the coming to be of Earth (**Gaia**) and Heaven (**Ouranos**)[10], is not necessarily a mixture

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7. Vlastos 1947, p. 170.

8. Ibid.

9. Vlastos 1952, p. 54.

10. Th. 116 ff.

but appears to have been thought of as primordial gap[11]. Moreover if, as Artistotle says, **to apeiron** "encompasses and steers all things"[12], its nature would appear to be at odds with that of Hesiodic **Chaōs**, whether it is taken as a mixture or a gap. In any event, the identification of causal or evolutionary antecedents seldom brings one closer to any real understanding. But if **to apeiron** is not the antecedent of the relative pronoun **hōn** in the passsage from Simplicius cited above; if the Boundless is not what is referred to by the plural "which" out of which is the generation of existing things, what <u>does</u> the **hōn** refer to?

Kahn argues that **hōn** refers not to **to apeiron** but to **ta onta**, the existing things themselves. These, he says, are not, as they have often been taken to be, individual beings, such as men and animals. Nor, he claims, are **ta onta** the hypostatised, Aristotelian, four elements Simplicius refers to at the conclusion of the passage, although Simplicius' evocation of the "change of the four elements into one another" does indeed help to elucidate Anaximander's intentions. As Kahn reads the passage, **ta onta** refers to the elemental qualities of hot, moist, cold and dry, and

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11. See, among others, Jaeger, p. 13 and Kirk and Raven p. 39.

12. Arist., <u>Phys</u>. 203b6 (**periechein apanta kai panta kubernan**). The verb **kubernaō** is primarily a navigational term, meaning to steer, or to act as helmsman. The phrase, though Aristotle's, is considered to have very much the character of a direct quote: see Jaeger, p. 30.

even more generally, to the changing seasons, as well as (by entension) to all natural cycles of birth, death and regeneration. To extend Kahn's argument further, for Anaximander, **ta onta** are the "existing things" of experience, as experienced. Their ceaseless cyclical movement (**aidios kinēsis**), whereby hot dies into cold, and cold, in turn, into warm; moist into dry, and vice versa; the seed into the earth, which once more generates seed; day into night, which dies into another dawn; and summer into winter, which expires at the inception of a new season of growth; is collectively the generation and destruction "according to what needs must be (**kata to chreōn**)", referred to in the fragment. These, the **onta** of experience, "make amends and give reparation to one another for their offence according to the ordinance (**taxis** -- which has also been translated as assessment or order) of time". Kahn's argument reflects an understanding of the qualitative, compact experience of a mythical world still untouched by the differentiating, Aristotelian, classifications that colour all the commentaries, including Simplicius' one. According to Kahn's analysis, the fragment makes no mention of things being generated out of, or by, the **apeiron**. Furthermore, he gives a credible account of Anaximander's cosmos[13] as rooted in experience both of the natural and of

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13. **Kosmos** in pre-philosophical Greece, was order of any kind. It only becomes world-order or universal order after Anaximander, whose cosmology is the turning point.

the the political order: a "universe governed by law", as he puts it.

I think Kahn is mistaken about the referent for the key word **hōn**, however. What his analysis of the grammar does is to split the Simplicius passage in half. With **ta onta** as the referent for **hōn**, the part that begins **ex hōn** and ends **kata tēn tou chronou taxin**, and deals with the qualitative elements that die into one another, becomes completely self-referential, with no connection to the first part of the passage: to the part that postulates "some different boundless nature (**hetera tis physis apeiros**) from which all the heavens arise and the **kosmoi** within them". That there should be no connection between these two parts is extremely unlikely, especially since the two parts of the quotation are not even separated by a full stop but only by a half stop (transliterated as a semi-colon).

Rather, I would venture, the **hōn** refers to **kosmoi**, the noun immediately preceding it in the passage, and if so, the following would be the sense of Simplicius' citation.

It is not one of the elements themselves, that is the **arche** ("beginning" not Artistotelian "material principle") of all other elements (qualitative, not hypostasized, as Simplicius inevitably understands them), but some different boundless nature (**hetera tis physis apeiros**), from which all the heavens (**ouranoi**) arise, and the **kosmoi** (orders) within these heavens. <u>And</u> -- the inclusion of the particle **de**

signals a connection with what goes before -- out of these **kosmoi** is the generation <u>for</u>, not of, existing things, and into these existing things destruction takes place according to what needs must be, for they (existing things, **onta**) make amends and give reparation to one another for their wrongdoing (**adikia**) according to the order of time.

With **kosmoi** taken as the referent for **hōn**, the whole passage attains a new coherence. Some boundless nature different from nature as the quality of experience[14], some <u>other</u> **physis**, gives rise to the heavens and the order[15] within the heavens. It is this order, generated by a

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14. **Hetera tis physis apeiros**: the indefinite article **tis**, (some), together with qualifier **hetera** (different or other) suggests that the **physis** referred to is not only boundless (**apeiros**) but essentially unknown and unnameable. The objectified **to apeiron**, <u>the</u> Boundless, does not appear inside the direct quote from Anaximander, and it is likely that Anaximander did not even use the qualifier as a substantive. For him **apeiros** was a quality of an unnamable **physis**.

Use of the word **physis** is not attested for "nature-as-coming-to-be" until Heraclitus in the very late sixth century, some time after Anaximander. The word does occur once in Homer (<u>Od</u>. X.303), however, where Hermes shows Odysseus the **physis** of the moly plant by showing him its black root and white flower. The moly's **physis**, insofar as Hermes demonstrates it to consist of root and blossom, can be understood to mean the plant's coming-to-be, its coming-to-light (from **phuō** -- emerge, come to light) in essentially the same sense as the Heraclitean sense of **physis**, which can also, therefore, justifiably be taken as Anaximander's sense.

15. Actually, Anaximander's **kosmos** is plural -- **kosmoi** -- because he postulates unlimited worlds. This particular aspect of his cosmology is not especially relevant at this moment, although it will become so later. For the time being Anaximander's **kosmoi** are referred to in the singular as order.

boundless source, which, as is elsewhwere attested, is all-encompassing and divine, that regulates guides the ebb and flow of elements experienced as things coming to be and passing away. This other, boundless, **physis** is the generation for the order of **onta**; it does not generate "existing things" themselves, for as Anaximander stresses, generation and destruction take place **kata to chreōn**, according to what needs must be, or, as Heidegger in his exegesis of Anaximander B1 translates it "along the lines of usage"[16].

Now, a phrase that occurs frequently in Homer is **kata kosmon**, according to order, but it is always qualified, either as **ou** (not) **kata kosmon**: disorderly; or **eu** (well) **kata kosmon**[17]: orderly. In the very form of the phrase rests an implicit assumption of some unnamed standard by which orderliness can be attributed to things, a measure by which things are "well" according to order or "not" according to order. This Homeric **kosmos** helps to elucidate Anaximander's **kata to chreōn**, while also expanding the sense of the entire passage.

The **kosmos**, the order, that regulates generation and destruction regulates them in as much as **kosmos** is the measure by which the flux of experiential **onta** can be called

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16. "The Anaximander Fragment", in Heidegger 1984, p. 54.

17. Il., II.214, VIII.12, x.472, XI.48, etc.; Od., III.138, VIII. 179, 489, 492, XIV.363 etc.

well- or ill-ordered. The measure that is **kosmos** does not in itself control or determine ebb and flow, since in the **onta** of experience ebb and flow are often disorderly, as the mention of their **adikia** (wrongdoing, disorderliness) in the very next phrase of the passage stresses. Yet, as I read him, Anaximander claims that out of **kosmos** is the **genesis** (coming to be) for **onta**, and into **onta** destruction takes place **kata to chreōn.** It is the polysemic **chreōn** of need/necessity/custom/usage, itself a feature of experience and rooted firmly in the human sphere, that discloses **kosmos** as the **genesis** for **onta**, and it is this that brings Heidedgger's exploration to the conclusion that the **to chreōn** of the Anaximander fragment contains the first word of Being[18].

Heidegger cuts the direct quotation from Anaximander down to a brief twelve words, dismissing even the traditionally accepted final **kata tēn tou chronou taxin** (according to the ordinance, order, or assessment of time) as not archaic enough -- "too Aristotelian in tone and structure to be genuine"[19]. With all due respect to Heidegger, and while acknowledging my own very limited competence in such matters, I would nevertheless recall a strikingly similar image of the court or judgement (**dike**) of

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[18]. ". . . **to chreōn** is the oldest name in which thinking brings the Being of beings to language". Heidegger 1984, p. 49.

[19]. Ibid., p. 29.

Time which appears in a fragment of a poem by Solon[20], written nearly a generation before Anaximander. For this reason, I think it is possible to allow Anaximander's **"chronou taxis"** to stand. And indeed the evocation of the role played by time as that agent whose assessment reveals order is perfectly in keeping with Heidegger's own interpretation of **to chreōn** as "usage" rather than "necessity", since usage is usage only if revealed as such through time. With the **"chronou taxis"** retained as integral to the fragment, it is even possible to reconcile the seeming disparity between Heidegger's interpretation of **to chreōn** as usage and the more traditional translation that reads **to chreōn** as "necessity" or "what needs must be".

The word for time in the fragment is **chronos**, a period of time[21]; a time with before, during and after; a time

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20. "Why did I cease before I gained the objects for whose sake I brought together the people? The great mother of the Olympian deities would be my best supporting witness for this in the court of Time (**en dikēi Chronou**)". Solon fr. 24, cited on p. 121 in Kirk and Raven, who also stress the similiarity to the assessment of time in the Anaximander fragment.

21. Homer uses **chronos** when he speaks of a while or a duration, as in a long while or a short while. For example, Odysseus addresses the assembly of Achaeans in the Iliad and says "Endure, my friends, and abide for a time (**epi chronon**)" (Il. II.299), and in the Odyssey, Telemachus says to Menelaus "Son of Atreus, keep me no long time (**polyn chronon**) here" (Od. IV.594). With Herodotus, the first historian, **chronos** emerges as chronology, as, for example when he discusses the develpoment of Greek mythology:

> Then after a long while (**dc chronou pollou**) they learned the names of the rest of the gods . . . and presently (**meta chronon**) they inquired of the oracle at Dodona concerning the names, for this

that, like the human life span, is essentially rectilinear. This sequential order is, as I read it, the **taxis** of **chronos** and it is an assessment insofar as it reveals the cyclical order, the ebb and flow of **onta**, discussed earlier. The **taxis** of **chronos** reveals custom as necessity insofar as sequential time necessarily makes its assessment of things as repeated or not repeated, as customary or not, as cyclical or not. What is cyclical or repeated is necessary; what is unrepeated, or unrepeatable, is not. It is rectilinear **chronos** as the arbiter or assessor of such necessity, that determines what is **eu kata kosmon** and what is not. **Chronos**, sequential time, is the judge -- both of earthly **chreon** and of heavenly **kosmoi**, since it discloses the cyclical, regular movements of the celestial bodies. Reciprocally, the cycles of **kosmos** are what give **chronos** its measure: how many days (cycles of the sun), months (cycles of the moon), years (cycles of the seasons) etc. **Chronos** is the link that reveals both heavenly and earthly cycles to belong to a single order, whose guide is some other boundless nature.[22]

> place of divination is held to be the most ancient in Hellas, and at that time (**ēn ton chronon**) it was the only one. . . . From that time onwards (**apo men dē toutou tou chronou**) they used the names of the gods in their sacrifices. (II. 52)

Anaximander is (chronologically) halfway between Homer and Herodotus.

22. It is worth noting the distinction Aristotle makes between **aiōn** and **chronos** in De Caelo (279a20 11). **Aiōn** (from **aei**, always, and **ōn**, being) is characterized as a

To recapitulate what has emerged from this reading of Anaximander B1. The structure of Anaximander's universe is not yet hierarchical. He does indeeed postulate a **hetera tis physis apeiros**, some other boundless nature-as-coming-to-be, which encompasses and guides all things, and which gives rise to the heavens and the **kosmoi** within them, but this boundless source is "other": it is unknown and unnameable. It is not, as the later commentators name it, **to apeiron**, the boundless. Although qualified as divine, it is also itself a quality, a feature of experience[23], discovered through experience.

This other boundless nature gives rise to the **kosmoi** within the heavens, which in turn are the **genesis** for **onta** as the ebb and flow of hot, cold, moist and dry dying into

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circle; complete, with no beginning and no end, and Aristotle says, "this word **aiōn** possessed a divine significance for the ancients; for the fulfilment (**telos**) which encompasses (**periechon**) the time (**chronos**) of each life . . . has been called its **aiōn**".

23. **Apeiros**, in Homer, is a qualifier of earth and sea, but chiefly of the earth, and these in epic poetry are not thought except as qualified, by this or other qualifiers. As a qualifier -- a feature of experience -- **apeiros**, whose gender, as an adjective, changed with the gender of the thing qualified, acquired independent ontological status by the addition of the definite article **to**, whereby its gender also became fixed as neuter. There is no evidence that Anaximander ever, himself, neutralized **apeiros**, since **to apeiron** only appears in the commentaries, and not in the verbatim quotation. It is significant that even much later, when Aristotle distinguishes between things that exist for themselves (**kath' hauta**) and those that exist attributively (**kata symbebēkos**), he classifies **to apeiron** as something that exists attributively (**kata symbebēkos esti to apeiron**-- Phys. 204a15), which is to say qualitatively.

one another, and this ebb and flow occurs according to usage, made recognizable as orderly or necessary (**eu kata kosmon**) by the assessment of time. As Anaximander speaks of it, the relationship between the **kosmoi** within the heavens and necessary usage would appear to be reciprocal, with the assessment of time the link between the two. The whole is an articulation of order, in which the logic, far from being Aristotelian, is still very much rooted in what Jean-Pierre Vernant would call a "logic of ambiguity"[24]: the logic of compact, mythical experience articulated in terms that are at once the **genesis** for the differentiations of an entire western tradition.

2. ANAXIMANDER'S IMAGE OF KOSMOS

The B1 fragment, as well as other sources, attest that Anaximander spoke[25] of order. He also, it would appear, built order: a model, about which very little is known, but

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24. Vernant 1974, p. 250.

25. Anaximander spoke of order: he was the first Greek writer of prose, which is to say that he wrote in the language of everyday speech. The Greek term for prose-writer is **logopoios**: **logos**: word, reason, computation; **poieō**: I make. A **logopoios** is to be contrasted with a **mythopoios**, a fabulist, or composer of fiction. The implication is that the writing of prose has to do with the relating of fact, and that the adoption of prose as a medium of expression signalled an awareness of, and an importance attached to, the distinction between fact and fiction. Although there is no textual evidence that Anaximander was ever referred to as a **logopoios**, Herodotus refers twice (V.36, 125) to Anaximander's successor, the Milesian geographer/historian Hecataeus (fl. ca. 520 B.C.) as a logopoios.

whose several parts seem to have included a celestial sphere, a map of the world and a **gnōmōn**.

Now it is possible to do as most commentators do and to consider these three artifacts separately, each as evidence of Anaximander's proto-scientific activity: each, respectively, proto-astronomical, proto-geographical, and proto-chronometrical. But, as I have attempted to demonstrate, the experience of order articulated in Anaximander B1 is still essentially compact, and so, I would contend, is the single order manifested through his allegedly disparate scientific activities. Anaximander's model of several parts was, in my view, intentionally a single undertaking.

Although Anaximander B1 contains only a few words that can be ascribed to Anaximander himself, this brief citation appears to have been part of a considerable body of written work, for as the tenth-century lexicographer Suda writes, Anaximander

> . . . first discovered the equinox and the solstices and the hour-indicators, and that the earth lies in the centre. He introduced the **gnōmōn** and in general made known an outline of geometry. He wrote <u>On Nature</u> (**Peri physeōs**), <u>Circuit of the Earth</u> (**Gēs periodos**), and <u>On the Fixed Stars</u> (**Peri tōn aplanōn**), and a Celestial Globe (**Sphairan** -- "sphere") and some other works.[26]

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26. Suda s.v.; cf. Kirk and Raven, p. 100 and Heidel 1921, p. 240.

Based on the assumption that in Miletus ca. 560 B.C., the notion of **physis** (nature, the lived world) was interchangeable with the notion of **genesis** (generation, emergence, being born) W.A. Heidel[27], has made a very illuminating case for all these supposedely separate works actually being one book. In other words, if **physis** is **genesis**, then cosmology (or "astronomy"), geography, and history (or "chronometry"), being all **peri physeōs**, are all about coming-to-be, and are therefore the same.

A similar unity of intent can be argued for the parts of Anaximander's built work -- his "model", as I have called it, even though its parts were built at different scales, and probably constructed at different times and in different places, as is implied when Diogenes Laertius says,

> Anaximander . . .was the first to discover a **gnōmōn**, and he set one up on the sundials[28] in Sparta . . . to mark solstices and equinoxes; and he also constructed hour-indicators. He was the first to draw an outline (**perimetron**) of earth and sea, but also constructed a (celestial) globe (**sphairan**).[29]

Anaximander did not, it would appear, invent any of these things: the Babylonians, with whom the Ionians were in close contact, had long been active in astronomy, and there

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27. Heidel 1921.

28. **epi tōn skiothērōn** -- literally, upon the shadow-trackers. Cf. also Vitr. I.vi.6.

29. Diogenes Laertius, II.1-2. Cf. Kirk and Raven, p. 100.

were Babylonian precedents for both the **gnōmōn** and the map of the world[30]. But the Babylonian ordering of the world was despotic and hierarchical, and indeed the cosmological ordering activity, as Jean-Pierre Vernant has noted[31], was integral to the role of the king. As the foregoing exploration of Anaximander B1 suggests, the understanding which Anaximander articulates, is of an order that emerges from a reciprocal, not a hierarchical, relationship between the heavenly and the human[32].

Anaximander made an image of **kosmos**, whose constituent parts were a celestial sphere, a map of the world and a clock (**gnomon**, "hour-indicators", equinoxes and solstices). The overall image, pieced together from the sources, was of a spherical heaven made up of circular bands for planets, fixed stars, the moon, and, at the outer limit, for the sun. The earth in the shape of a column-drum[33] hung suspended at

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30. See Kahn, p. 75 ff., Rirk and Raven, p. 103 ff., and Vernant 1982, p. 112 ff. Herodotus, II.109: "The Greeks learned from the Babylonians of the celestial sphere and the gnomon and the twelve parts of the day."

31. Vernant 1982, p. 112.

32. Jean-Pierre Vernant's view (Vernant 1982) is that just as the Babylonians placed a hierarchical order in the heavens, so the Greeks, with the pre-Socratics, placed an incipient democratic order in the heavens. It is a view that, to a certain extent, eliminates what I perceive as the pre-Socratic attempt to articulate reciprocality. The role of the emerging polis in Anaximander's cosmology may be undeniable, but it is not necessarily exclusive.

33. **kionos lithos** -- literally, the stone of a column. Hyppolytus I.6.3.; cf. Kahn, p. 55, and Kirk and Raven p. 133.

the centre. This flat cylindrical earth, with a diameter three times its depth, stayed at the centre by virtue of symmetry and balance, its equidistance from the outer edge preventing its fall in any given direction.

Theōria

The image, as an image, for the first time, presented **kosmos** as a spectacle, a **theōria**, and that such an image put order on display, as it were, can be seen to underscore the view of Anaximander as presiding at the birth of theory. This is indeed so if one accepts the usual modern view which stresses the speculative, non-participatory side of **theōria**, and reads backwards from an assumed evolution to theory-as-contemplation, an evolution to theory-as-opposed-to-practice. But there is another dimension to the whole question, for, when theory was born, as it were, Anaximander was not just the presiding midwife; he was also the baby.

In the life of a collective consciousness, the movement from compactness to differentiation is comparable to the birth and growth of an individual human being who leaves the compactness of life <u>in utero</u>, where child is mother and mother is child, to acquire an increasingly differentiated understanding of the world. In the absolute darkness of the womb the child can, at the most, have only four senses--

taste, hearing, smell and touch. Only at birth, with the first and most definitive separation, does the child acquire her fifth sense and begin to see.

This seeing, and the separation it presupposes, can be taken as emblematic of the birth of theory, for recent etymologies have shown, apparently with some conclusiveness, that the primary and original meaning of **theōros** was that of spectator. This modern claim is based on the derivation of **theōros** from **théa:** seeing, spectacle, and **horaō:** I see. Furthermore, **theōroi** were ambassadors to sacred festivals who left (were separated from) their native city to attend festivities elsewhere, and the assumption has been that these ambassadors observed but did not participate. But a closer look at the ancient sources[34] shows that many **theōroi** did in fact participate by offering sacrifices, and by taking part in the dances and games.

It also is worth recalling that, while **théa**, with the tonal accent on the middle syllable, means seeing or spectacle, **theá**, with the accent on the final syllable, means goddess[35]. Indeed the ancient etymolgists, from Plutarch onwards, usually supposed that the first part of

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34. Cf. Rausch, p. 22 ff.

35. Accents were not introduced in Greek until the third century B.C., and I suspect that their introduction had a great deal to do with an attempt to differentiate things that at an earlier stage were understood to be the same, or at least qualitatively similar.

the word **theōros** was **theos**[36], and that a **theoros** was someone who performed service to, or had care for, a god[37]. Moreover, the ancient etymologies, so readily dismissed by modern linguists, were much closer to the ancient experience than we are. The "caring for a god" aspect of **theōria** is especially evident when ancient sources use the word **theōros** to refer a person who goes to consult an oracle[38]. Etymology is, at best, a only a guide, and is possible to claim, as Hannelore Rausch does[39], that there is room for both gods and seeing in **theōria**.

The child's first gaze is a gaze of wonder. In Homer, the verb **theaomai**, for which the noun **théa** is a cognate, means to gaze upon with wonder, to marvel at[40]. The verb **thaumazein** (to wonder at, marvel) and the noun **thauma** (a wonder, a marvel) are very closely related to **theaomai**, for in Homer it is almost invariably what is seen that is

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36. See Bill, p. 197; Rausch, p. 14 ff.

37. **theos**: god; **ōra**: care.

38. As for example in Theognis 805 ff., a passage discussed at greater length below. See also Bill, p. 196 and Rausch, p. 18 ff.

39. Rausch, p. 18.

40. Cf. for example, Il. VII.444, where the gods "marvelled at (**thēeunto**) the great work of the bronze-coated Achaeans" -- the wall the Achaeans built to shut off their ships from the Trojans --and Od. II.13, where the people "marvelled at (**thēeunto**)" Telemachus as he enters the assembly because he is clothed in a "wondrous grace" shed upon him by the goddess Athena.

wondered at: it is the eyes that marvel[41].

Generally speaking, Homeric eyes fill with wonder on one of two occasions: first, when the spectacle suggests an unseen divine presence, and second, when the sight beheld is of something particularly well made. These two instances are not unrelated.

Thus, in the Iliad, Priam marvels at Achilles "for he was like the gods to look upon"[42], and in the Odyssey, when, in Book XXIV, Odysseus, emerges from his bath where the goddess Athena has restored him and made him taller and mightier than before, "his dear son marvelled at him, seeing him in presence like unto the immortal Gods"[43]. Athena's too is the hidden divine presence at which, unwittingly, Telemachus marvels when he wonders at "the walls of the house and the fair beams and cross-beams of fir and the pillars. . . (which) glow in (his) eyes as with the light of a blazing fire"[44]. The well-built house glows with the hidden presence of a goddess.

A stock phrase that occurs repeatedly in both the Iliad

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41. For example, "truely a great marvel is this that my eyes behold . . . (**hē mega thauma tod' ophthalmoisin horōmai**." Il. XIII.99, XV.286, XX.344, XXI.54. Also, typically, "but at the sight they marvelled (**hoi de idontes thaumazon**) . . . (and) when they had satisfied their eyes with gazing (**horōmenoi ophthamoisin**) . . .". Od. IV.44-47.

42. Il., XXIV.629.

43. Od., XXIV.370.

44. Od. XIX.36.

and the Odyssey is **thauma idesthai**, "a wonder to behold". Now, absolutely without exception, every time Homer qualifies something as "a wonder to behold" the thing so qualified is a beautifully, or divinely, crafted piece of work. So, in the Iliad, is Hera's chariot, with its bronze wheels, whose felloes are of imperishable gold, over which "tires of bronze are fitted, a wonder to behold"[45]. "A wonder to behold" is Rhesus' armour "cunningly wrought of gold and silver"[46], and Patroclus' armour[47], and Hephaestus' strangely animated bronze tripods that propel themselves about on wheels[48]. **Thauma idesthai**, in the Odyssey, are the walls of the Phaecian city[49], and Aphrodite's gown[50], and the purple webs the Naiads weave on stone looms in a cave in Ithaca. In the Hesiod's Theogony, Pandora's veil is "a wonder to behold", as is her gold crown, on which is "much curious work (**daidala polla**)", for Hephaestus, who made it, put on it most of the creatures "which the land and sea rear up . . . like living beings with voices"[51].

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45. Il. V.725.

46. Il. 10.439.

47. Il. XVIII.83.

48. Il. XVIII.377.

49. Od. 7.45.

50. Od. VIII.366.

51. Th. 571 ff.

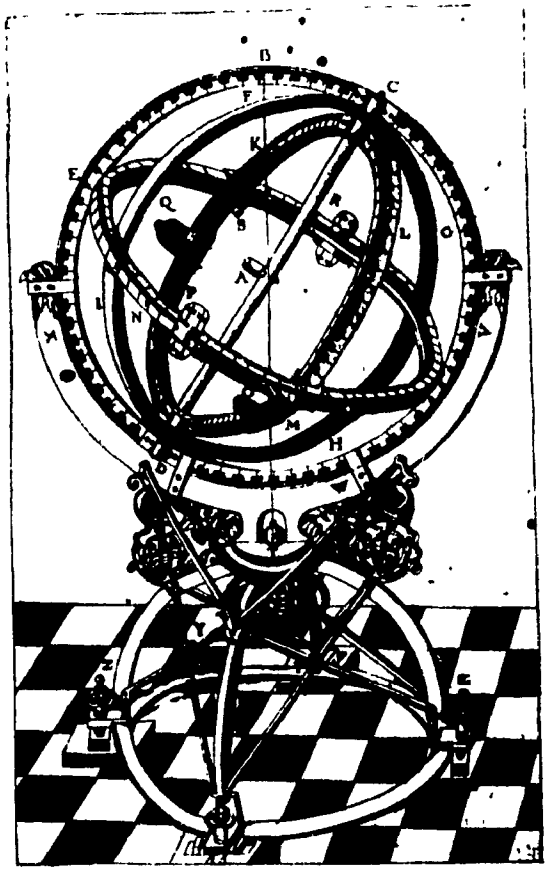

Figure 1

The Celestial Globe

Although there are several second-hand reports of Anaximander's cosmology itself (reports taken to be based on his book -- or books), an almost total absence of sources, makes it virtually impossible to affirm anything definitive about the celestial globe as a model, except that it existed[52], and that it was an image of the heavens.

Assuming its three-dimensional existence, one might conjecture, that it was, at least in part, built of metal, since curves, generally speaking, are easier to work in metal than in wood. Hammered bronze was a well-known medium in archaic Greece where hammered bronze tripods, which had hemispherical basins, were highly valued. A hoplite's armour, where a proper fit was essential, was of also of hammered bronze, and his helmet, a nearly spherical affair with nose a cheek pieces, was sometimes even hammered out of a single sheet of the metal[53].

One might also conjecture that Anaximander's sphere was an assembly of several parts, since solar, lunar, stellar

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52. Kirk and Raven (p. 104) claim that its existence is improbable, first, because it is based on a single, unsubstantiated reference in Diogenes Laertius (II.2 -- see above), and second, because of the complexity of Anaximander's theory of the heavenly bodies. Kahn (p. 89) assumes the existence of the sphere, but supposes that, rather than having been a three-dimensional construction, it may simply have been a chart "of the sort used in ancient representations of the zodiac".

53. See Snodgrass 1967, Ch. III.

and planetary rings figure largely in all descriptions of his cosmology[54]. These rings, like the felloes (**apsida**) of chariot wheels to which they were compared[55], may, in the model, have been all metal, or may have been wood rimmed with bronze. The felloes of wooden wheels are quite complex to make, being constructed of several pieces of curved wood, which must fit together exactly[56] in order to form the required circle. The rings, according to the sources, were supposed to have been hollow, and full of fire, with apertures or "breathing-holes" (**ekpnoas**) through which the fire showed to appear as the heavenly bodies.

However much, or little, of the reported cosmology appeared as literally represented in the model, it would have been a complex assembly requiring a careful adjustment of parts. The model may even, conceivably, have been mechanical[57], with moving components, but even if its parts did not themselves move, the whole point of its construction would have been to reveal, by arresting them, the movements of the heavenly bodies.

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54. See Kahn, p. 85 ff, and Kirk and Raven, pp. 134-35.

55. Aetius, II.20. Cf. Kirk and Raven, p. 135.

56. In fact the English word felloe derives from the old Teutonic felhan, which means to fit together (OED).

57. Archimedes (ca. 287-212 B.C.) is reported to have built a celestial globe that was mechanical. See Cicero, De Republica, I.xiv.

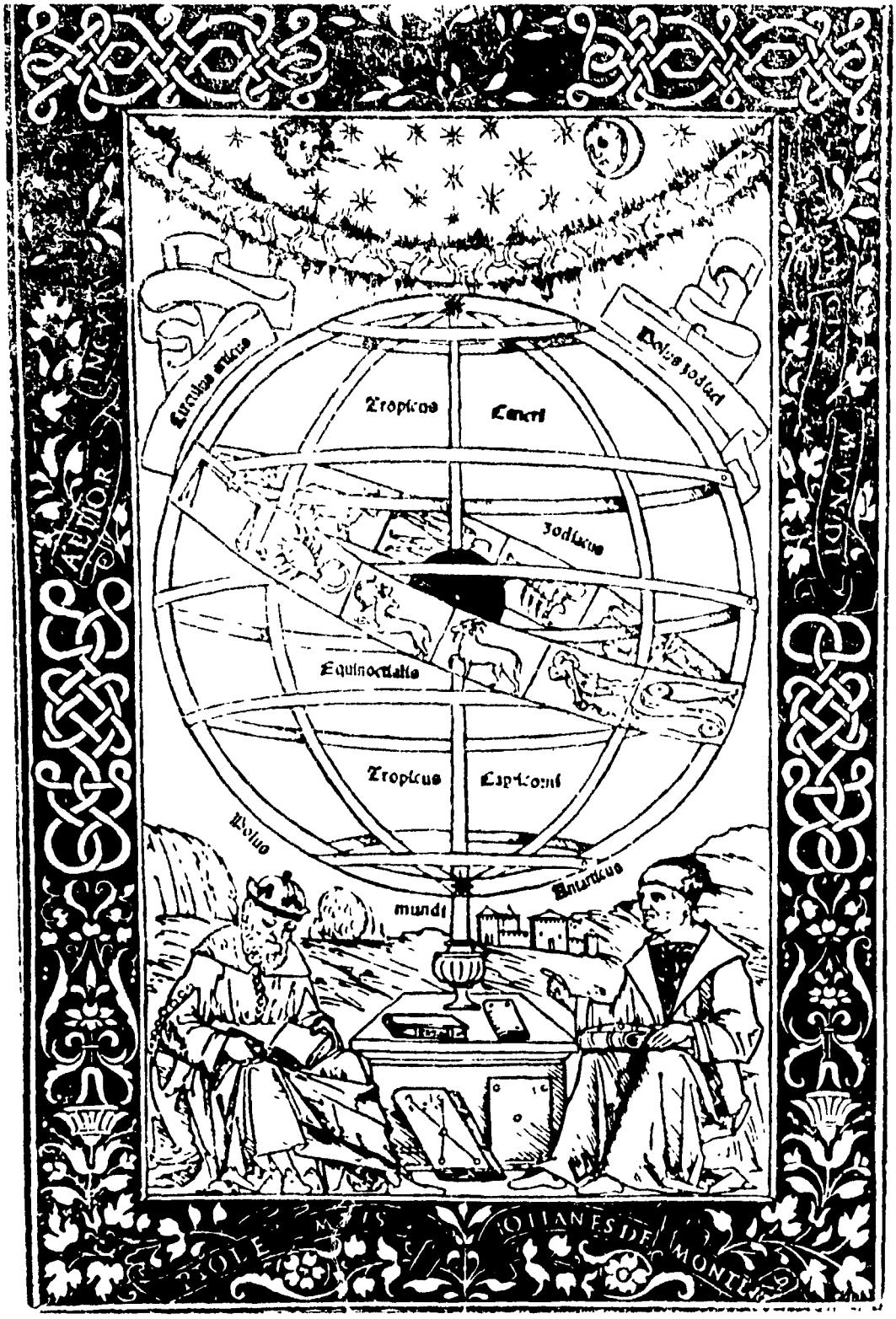
Tropicus
Cancri
Zodiacus
Equinoctialis
Tropicus
Capricorni
Polus
mundi
Antarticus
IOHANES DE MONTE

Figure 2

The Map

It is with some reticence that I use the word "map" to refer to Anaximander's image of the earth's surface. The ancient sources use the word **pinax**, which can mean "tablet", "chart" or simply "plank", when they refer to the artifact itself, and **gēs periodos**, "circuit of the earth", or "way, path or travelling (**hodos**) around the earth" when they refer to the geography. "Map" is rather too modern, but, unfortunately, discussion becomes exceedingly clumsy if its use is avoided. This said, there is slightly more information about Anaximander's "map" than there is about his sphere.

> Anaximander the Milesian, a disciple of Thales, first dared to draw the inhabited world on a tablet (**tēn oikoumenēn en pinaki grapsai**); after him, Hecataeus the Milesian, a much-travelled man, made it more precise (**diēkribōsen**) so that it was a thing to be wondered at (**thaumasthēnai to pragma**). . . . Now the ancients drew the inhabited earth as round, with Hellas in the middle and Delphi in the middle of Hellas . . .[58]

The earth, as noted, was cylindrical, "round like a **kionos lithos**", like a column-drum, and "of its surfaces (**epipedōn**), one we walk on, and the other is on the opposite side"[59]. To make his map, Anaximander would have, so to

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58. Agathemerus I.1. Cf. Kahn p. 82, Kirk and Raven p. 104.

59. Hyppolytus Ref. 1.6.3. Cf. Kirk and Raven, p. 134. Kirk and Raven translate **epipēdon**, as "flat surfaces", but an **epipedos** is simply a surface, not necessarily a flat one, which is important in view of the possibility, discussed below, that Anaximander's earth, or at least his map, had a convex suface.

speak, sliced off the **oikoumene**, the walked-upon surface, from the cylinder, for the map was indeed round, something Herodotus, in the fifth century, found a matter for ridicule:

> I laugh when I see that many have drawn circuits of the earth (**gēs periodous**) and none of them has explained the matter sensibly: they draw Okeanos running around the earth, which is round as if turned on a lathe (**eousan kukloterea hōs apo tornou**)[60], and they make Asia equal to Europe.[61]

The column-drums of the sixth-century Heraion in neighbouring Samos, just across the bay from Miletus, were turned on a lathe[62], and the proportion of their diameter to thickness was roughly three to one, as it was for Anaximander's cylindrical earth.

Whether the tablet (**pinax**) on which the round **oikumene** appeared was itself round is difficult to determine. **Pinakoi**, in Homer, are platters on which food is served[63], but they are also the planks of ships[64]. Herodotus tells of a **chalkeos pinax**, a bronze map, that Aristagoras of Miletus

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60. Both Kahn (p. 83) and Kirk and Raven (p.104) translate **eousan kukloterea hōs apo tornou** as "circular as if drawn with a compass". "Turned on a lathe" is an acceptable alternative reading, since a **tornos** can be a compass or a lathe.

61. Hdt., IV.36.

62. See Coulton, p. 24. Theodorus of Samos, who with his father Rhoikos was architect of the sixth-century Samian Heraion is credited with having invented the lathe, or compass, or both, along with the square and the level.

63. Od. I.141, IV.57, XVI.49.

64. Od. XII.67.

brought to Sparta in 499-98 B.C, in order to persuade the Spartans to help in the Ionian revolt against the Persians. Aristagoras used the **pinax**, on which was cut (**enetetmēto**[65]) "the circuit of the entire earth the whole sea and all the rivers"[66] to show Cleomenes, the Spartan king, the rich lands at the back of Ionia and also to locate Susa where, he said, the Spartans would find the Great King's treasure[67]. Aristagoras' mission from Miletus took place about sixty years after Anaxiamnder's floruit, and the only documented precedents for the **chalkeōs pinax** Herodotus speaks of are the maps of Aanximander and Hecataeus, both Milesians. Given the shortness of the tradition, it seems highly unlikely that the **pinax** Aristagoras brought to Sparta would have been bronze had its precedents been painted or drawn or wood. Rather, I would argue, the precedents too must have been bronze. It is even possible that the **pinax** Aristagoras brought to Sparta may have actually been one of the two

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65. **Enetetmēto**, a participle of the verb **entemnō** meaning cut or cut up, in contexts such as this one is usually translated as "engraved". However, since the verb is also used to refer to the cutting up of animals in sacrifice (apportioning of the victim), "engraved" as the description of how the map was made does not necessarily cover all the possibilities.

66. **gēs apasēs periodos . . . kai thalassa te pasa kai potamoi pantes**. Hdt., V.49.

67. Hdt., V.49-50.

Figure 3

known earlier **pinakoi**.[68]

To assume that Anaximander's **pinax** was bronze is not to assume that it was solid bronze. More probably, it would have been of composite construction, like the **hopla**, the great round shields, that were the salient, eponymous, feature of a hoplite's armour. These were constructed out of wood, faced with bronze and emblazoned with cut-out insignia, or engraved[69]. It seems to me that Anaximander's map must have been very much like a shield, which is something that would account for a rather contentious phrase in one of the sources.

Hyppolytus says that the **schēma** (form, shape) of Anaximander's earth is **guron**[70] (curved, like a hook, or with hunched shoulders), **stroggulon** (rounded), resembling a column drum. Kirk and Raven take **guron** to refer to the circumference, or circular section, of the column drum, with **stroggulon** as a gloss on **guron**. Diels, however, read **guron** as convex, and took it to refer to the earth's surface[71].

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68. When Eric H. Warmington cites this passage he notes that "the map here dealt with was probably Anaximander's, if not Hecataeus's" (Warmington, p. 229).

69. See Snodgrass 1967, pp. 53-54, and note on **enetetmēeto**, above.

70. The manuscript, apparently, has **ugron**, moist, which most interpreters change to **guron**, curved. Cf. Kahn, p. 55, Kirk and Raven p. 133-34.

71. Doxographi Graeci 218. Cf. Kahn p. 55, Kirk and Raven p. 133. Kahn suggests that the "curved" surface of the earth refers to its concavity: the concavity of the

The earth, in the ancient view, was at the centre, with Hellas at the centre of the earth and Delphi, with its **omphalos**, its convex navel-stone, at the centre of Hellas. The earth was the **omphalos**, the navel, the convex boss or knob, at the centre of the cosmos. Before Anaximander, Thales had claimed that the earth floated on the ocean, an image which recalls Calypso's "sea-girt isle" in the Odyssey: **omphalos thalassēs**, the navel of the sea[72]. Homeric shields are **omphaloessai**, bossed[73], and the hoplite, shields of Anaximander's own day were convex, with a flat rim running around the outer edge[74]. Anaximander had Okeanos, the great river of Ocean, running around the outer edge of his circular map, as did that glorious forerunner of all cosmic maps, Achilles' shield[75]. When Haephaestus wrought Achilles' shield, "therein he wrought the earth (and) the heavens"[76]. Anaximander made a separate model for the firmament, but, I would suggest, the earth as a shield remained.

Anaximander made the first map. Hecataeus, a generation or so later, travelled widely and brought it to

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Mediterranean basin.

72. Od. 1.50.

73. Il. IV.448, VI.118, VIII.62, XI.259 etc.

74. See Snodgrass 1967, p. 53.

75. Il. XVIII.607-8.

76. Il. XVIII.483.

perfection, or made it more precise (**diēkribōsen**). Hecataeus' travels were a **theōria**, for Herodotus says of Solon, the great Athenian poet and legislator, that "he, having made laws for the Athenians at their request, left his home for ten years and set out on a voyage to see the world"[77], and the single Greek word, repeated again a few lines later, that is covered in the English translation by "to see the world" is the word **theōriēs**. Solon left Athens to "theorize", to be a **theōros**. Seen in the light of forgoing discussion of **theōria**, Solon, as a traveller, was both a spectator and servant of the gods. Seeing the world, for a Greek in the sixth century, meant viewing and wondering at the shifting surface of **physis/genesis** that shimmered in the Mediterranean light, an undertaking understood as comparable in nature to a sacred embassy (**theōria**) to Delphi or Olympia.

When Hecataeus brought Anaximander's map to perfection, he did not necessarily make a more exact representation, a more accurately scaled copy, of an earth viewed objectively on his travels. Whether on foot, under sail, or on hoseback, the rigors of sixth century B.C. travel would, one must imagine, have made a **theōria** of the kind undertaken by Solon or Hecataeus highly participatory. And never, in the terms the ancient sources actually used, was a map simply a representation of **gē**. What is today called a map was, as

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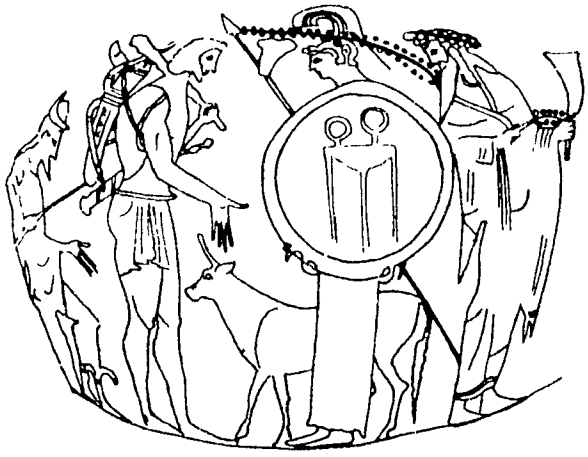
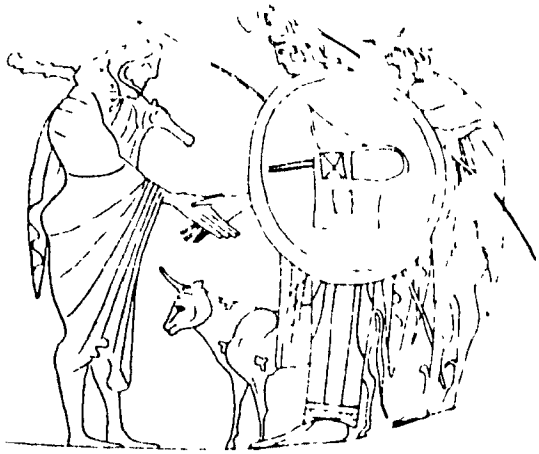
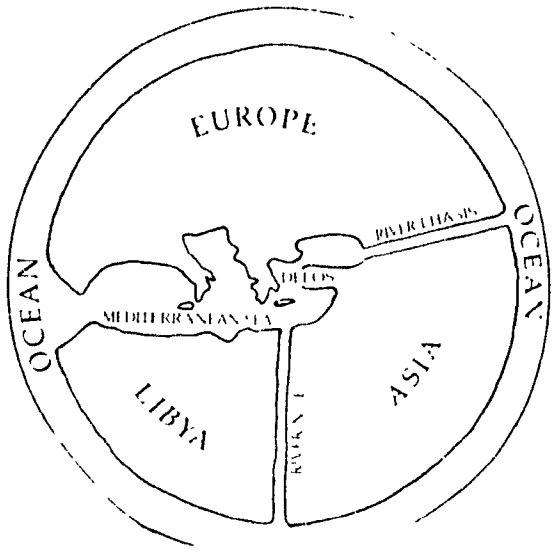
77. Hdt., I.29.

Greek shields with insignia







A reconstruction of
Anaximander's map

Figure 4

has been noted, spoken of as a **gēs** periodos, a circuit of, or journey[78] around, the earth, engraved or cut out **en pinaki,** on a tablet. What these terms reveal is mapmaking as an attempt to somehow arrest or make manifest the travelling itself; an effort to capture in an artifact the relationship between an earth still perceived as divine and alive and the human experience of journeying over her surface.

It is generally assumed that Hecataeus' perfection of Anaximander's map entailed the drawing of another, more accurate map, based on the earlier one which served as a model. If, as I have argued, Anaximander's map was an assembly, constructed along the lines of a hoplite shield, with bronze plates fixed to a wooden backing, then the **diakribousa**, the perfecting, of the earlier map may very well have been just that: the removal of certain plates, the making of shinier, newer ones, and the more perfect adjustment of the entire assembly so that, as Agathemerus attests, "it became a thing to be wondered at"[79].

When Aristagoras went to Sparta to persuade Cleomenes

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78. Some translators translate **periodos** as circumference or outline. I think this is wrong. An **hodos** is a path, or a way, and a path, as anyone who has ever lived in the country knows, is traced by the passage of human feet. In Homer, especially in the Odyssey, **hodos** is travelling or journeying (Od. II.285, VIII.150 etc.) Later, a work of descriptive geography was called a **periploos**, a circumnavigation (a **ploion** is a ship), with the same suggestion of travelling or movement.

79. **Thaumasthenai to pragma.** See above.

to help the Ionians win their freedom, his tactic was an appeal to Cleomenes' greed. The lands at the back of Ionia were rich, and further east the Spartans would find the treasure of the Great King. Aristagoras brought along a **chalkeōs pinax** to make his point, and as long as the map sustained his plea, Cleomenes was convinced. The map convinced him not, I would say, because the it gave accurate directions for getting to the treasure, for two days later, when Aristagoras was forced to tell Cleomenes that Susa and its treasure were three months' journey distant (something the map had failed to reveal), Cleomenes was angered and dismissed Aristagoras summarily. Cleomenes was at first convinced because the map was **thauma idesthai**, "a wonder to behold" to use Homer's phrase, and because, as such, it made evident, by sharing their very identity, the splendour of oriental lands and their amazing wealth.

The Temporal Component: The Gnomon

For all that the **chalkeōs pinax** Aristagoras brought to Sparta was, as a **gēs periodos**, an image of travelling, it failed to reveal to Cleomenes how long it would take the Spartans to get to Susa. The map did not, could not, reproduce time. Besides the celestial globe and the map, Anaximander's model, his image of **kosmos**, needed yet another component to be complete.

Earlier, it was noted that, in Achilles' shield, Hephaestus wrought both the heavens and the earth, whereas Anaximander's shield, if his **pinax** was indeed a shield, carried only an image of the **oikumene**, the inhabited earth, with the heavens accounted for in a separate model. Achilles' shield is almost entirely a temporal construction[80], since, except for the bounding ocean around its edge, there is no way of actually locating any of the many narratives Homer says Hephaestus wrought into the shield's five-layered surface. The shield is an image of compact mythical experience. In it, the bounding ocean, the circular horizon of human experience, encompasses heaven and earth in time, and there is nothing outside the shield.

Although Anaximander's, intentionally, was still a single artifact, it needed three parts for Homer's one. Anaximander's experience may, as yet, have been undifferentiated, and his intention, still, to articulate that experience <u>as</u> undifferentiated, but what was noted earlier in discussing Anaximander B1 -- that the articulation was now in terms that were the **genesis** for the

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80. The temporality of the shield is mentioned in Frontisi-Ducroux, p.74. As Frontisi-Ducroux further observes, although the later, fifth-century B.C., pseudo-Hesiodic <u>Shield of Heracles</u> owes a great deal to its Homeric precedent, its structure becomes much more spatial than temporal. It is significant that when Haephaestus makes Achilles' armour, he fashions the shield first, and its description runs for 130 lines from <u>Il</u>. XVIII.478 to 608. The rest of the armour (helmet, corselet, greaves) is accounted for in a brief 10 lines at the end of the book.

Figure 5

differentiations of an entire western tradition -- also holds true for the parts of his cosmic model.

The third part of Anaximander's model was a sun clock. This, we saw, was most probably not his own invention, even though Diogenes Laertius claims that it was[81], for Herodotus says that "the Greeks learned from the Babylonians the **polos**[82] and the **gnōmōn** and the twelve parts of the day". Nevertheless, Anaximander did, it would appear, introduce the **gnōmōn** to Greece.

Now, a **gnōmōn**, in this particular context, is the pin or pointer set up **pros orthas**, at right angles[83], on a sun clock, a vertical whose shadow indicates the sun's direction and height. A **gnōmōn**, however, is also a set square, or any vertical rod, and the suggestion seems to be that the generic feature of what the Greeks called a **gnōmōn** was orthogonality: the correct relationship between vertical and horizonal.

But the word **gnōmōn** derives from the verb **gignoscō**, I know, and the textual evidence indicates that, while the Greeks used it to speak of uprights, they also used it to speak of people: of the person who knows, the one who

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81. II.1.

82. **polos**: any kind of pivot, the axis of the celestial sphere, or, as Kirk and Raven have it (p. 103), the celestial sphere itself. A.D. Godley, the Loeb translator, renders **polos kai gnomon** in this passage (Hdt., II.109) as "the sunclock and the sundial".

83. Cf. Vitr., IX.vi.2.

discerns. The noun **gnōmōn** does not appear in Homer, but the verb **gnoscō** does, and in almost all cases the knowing so referred to is knowing in the sense of the ability to recognize and interpret certain signs. Thus, for example, in Book VII of the Iliad, lots are cast and "Aias held out his hand, and the herald . . . laid the lot therein; and Aias knew (**gnō**) at a glance the lot thereon . . ."[84]. Aias alone of the Achaean warriors recognized and was able to interpret the significance of the token marked with his sign. Similarly, in the Odyssey, Halitherses is said to have "surpassed all men of his day in knowledge of birds (**ornithas gnōnai**) and uttering words of fate"[85]. Birds, of course, are omens[86], and the person who knows birds recognizes birds as omens. To know birds is to know which are omens (not all birds are), and when they are, to be able to tell others what their significance is. The knower in both these examples is a mediator of signs, and Homeric usage clearly suggests that to know as **gnōnai** is different from knowing as **eidenai** (seeing) or knowing as **episthethai** (having skill)[87].

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84. Il. VII.189.

85. Od. II.159.

86. See, among others, Harrison 1912, p. 100.

87. A single passage in the Odyssey (XIII.311-13) uses all three verbs for knowing, and differentiates their meanings quite well: "Then Odysseus of the many wiles answered her (Athena) and said: 'Hard is it goddess, for a mortal man to know (**gnōnai**) thee when he meets thee, how

The word **gnōmōn** as knowing thing -- person or set square -- is post Homeric. In Aeschylus' Agamemnon, a **gnōmōn** is a person, an interpretor of **thesphatoi**[88], of divine utterances or prophecies, which is to say a human link beween heaven and earth. It is difficult, and perhaps not even very important, to establish which usage, person or set square, came first. Theognis uses **gnōmōn** to refer to a set square, or carpenter's square, in the mid sixth century B.C., and Aeschylus uses it for interpreter at the beginning of the fifth. Whether a sundial-pin was called a **gnōmōn** when it was first introduced to Greece is impossible to establish, since the Herodotus citation dates from the late fifth century, over a century after Anaximander. However, if uprightness had been the sole critical feature of sundial pointers or set squares, they would probably have been called something other than **gnōmōn: to orthon**, a straight-up thing, might, for example, have been a conceivable alternative. But the early Greek understanding was that uprightness, the relationship of vertical to horizontal, which is the relationship of the human body to the earth, had to do with knowledge as the recognition and interpretation of signs. As Vitruvius, who based his

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knowing (**epistamenōi** -- having skill) so ever he be, for thou takest what shape whou wilt. But this I know well (**eu oida** -- I see well), that of old thou wast kindly to me . . . " (XIII.311-13).

88. Ag. 1130. **Thesphatos**, literally, means spoken by a god: from **theos**, god, and **phēmi**, I speak or utter.

treatise on Greek sources, notes, people, walk "not with head down, but upright", and it is the orthogonality of human posture that makes the human person the link between heaven and earth, that places him the the unique position of being able to "look upon the magnificence of the world and (my italics) of the stars"[89].

With the sundial, the significance of the **gnōmōn** as the upright mediator of knowledge through interpretation becomes very explicit. If the sun's position at the equinoxes and solstices are to be accurately marked on the sundial's pavement, the pin must be set up at exactly 90 degrees to the ground, and the ground must be level. Theognis said that "the man who is **theōros**[90], to whom the Delphic oracle gives signs (**sēmēnēi**[91]) . . . must be more exact that the compass (**tornos**), the carpenter's rule (**stathmē**) and the **gnōmōn**, for if he adds one word, there is no hope to undo the evil, and if he subtracts one how would he not be guilty before the gods?"[92] The **gnōmōn** Theognis refers to is a set square, a carpenter's tool like the compass and ruler, and

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89. mundique et astrorum. Vitr., II.1.?.

90. Theognis is the first to use **theōros** to mean an oracle-questioner.

91. See also Heraclitus, fr. 93: "The lord whose oracle is in Delphi neither speaks out (**legei**) nor conceals (**kryptei**) but gives a sign (**sēmainei**)".

92. 805 ff., Theognis: Poemes elegiaques, texte etabli et traduit par Jean Carriere, second edition, (Paris, 1962), p. 64. Cf. Rausch, p. 18 and in note 24, p. 185.

the context in which it is evoked makes it, as well as the other tools, an emblem of the exactitude required for proper interpretation of signs emitted from a divine source. The case of the **gnōmon** of a sundial is comparable.

The construction of a sundial depended on knowledge of the movements of the heavenly bodies, which Anaximander revealed when he arrested them in the construction of his celestial globe. Knowledge of equinoxes and solstices established the fixed references needed to give a **gēs periodos** an image in a map[93]. Anaximander's earth was a flat disk, and its form did not reflect the spherical form established by heavenly **kosmoi**[94]. The link that allowed for a reciprocal relationship between heavenly **kosmoi** and earthly **chreon** (necessity or custom), was established, as I read Anaximander B1, **kata tēn tou chronou taxin**, according to the order of sequential time. In the third part of Anaximander's cosmic model, the link is the mediating **gnōmōn** that obstructs the sun's light in order to throw a shadow which moved over a paved piece of earth in a graphic reflection of celestial movement. The pavement, or analemma, was marked with equinoxes, solstices and hour-indicators, whose position as reference points the **gnōmōn**, a human artefact set up at right angles to the earth, had also

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93. See Heidel 1937, p. 2 ff.

94. Not until Plato (cf. Phaedo 97b-99d, 110b) does the shape of the earth become spherical to reflect the spherical configuration of the heavens. Cf. Heidel 1937, p. 63 ff.

determined[95]. There may have been lived time before the **gnōmōn**, but before the **gnōmōn**, there was no recognition or proper reading of celestial signs, and time, because is was not yet interpreted, was not known. It was this human artifact, a concrete reflection both of human posture and of **chronos** as the rectlinear movement of time in the the human life-span[96] that revealed the heavenly **kosmos** as cyclical and temporal. It was because of the **gnōmōn**, the mediating upright, that Plato was able to assert in the Timaeus, nearly 200 years after the **gnōmōn**'s introduction to Greece, that "Time (**chronos**) came into existence along with the Heaven (**ouranos**)", and that God created the sun, the moon and the planets "for the determining and preserving of the numbers of Time"[97]. Without the **gnōmōn** there was no knowledge of these numbers.

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95. See Vitr., IX.vi.1: "For from that revolution of the sun through the (zodiacal) signs and the equinoctial shadows of the gnomons, the diagrams of the analemma are discovered".

96. See Arendt, p. 246.

97. Timaeus 38b-c.

III DAEDALUS AND THE DISCOVERY OF ORDER

Heaven, Plato has Timaeus say, was created in, or with, time "according to the pattern of the eternal nature, **kata paradeigma tēs diaiōnias physeōs**"[1]. In Plato's Timaeus, the entire universe is an artifact constructed according to a **paradeigma** by a craftsman, a **dēmiourgos**. Unlike Anaximander's, Plato's universe would appear to be hierarchical. Anaximander's **hetera tis physis apeiros**, his unnamable, indefinite (**tis**), other, boundless nature, that encompasses and guides all things, seems to have become, in Plato, the (**tēs**)[2], definite, eternal nature, whose pattern, or **paradeigma** -- which is what the Greeks called the architectural specimen[3] that a builder copied or used as a standard -- is the immutable Idea that Plato's **dēmiourgos** copied when he made the world of Becoming in time.

One might assert that Plato's notion of the heavenly craftsman and his eternal **paradeigma** was "nothing but" the projection of the known, human, way of building on to the unknown, divine or cosmic sphere. However, the question of

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1. 38b.

2. As discussed earlier, Anaximander uses the indefinite article **tis**, some, to speak of "some" **apeiros physis**, some boundless nature, that encompasses and guides (**kubernan** -- the term, it must be recalled, is navigational) all things. Plato uses the definite article **hē** (the genetive of which, in the context cited, is **tēs**), to speak of the eternal nature on whose pattern the universe is modelled.

3. See Coulton, p. 55 ff.

pattern is somewhat more complex.

How, for instance, did the human builder's **paradeigma** become a **paradeigma**? Itself being made in time, it certainly did not exist eternally. But what, then, were the criteria which made it, and not some other specimen, the one to be copied? The answer is not simple.

1. ARTIFACT AND KOSMOS

The discovery of a pattern seems to me to be an inherent feature of the human experience of making. Whether he or she thinks about it or not, or even is aware of it, a person who makes something assumes the existence of a standard of rightness that transcends all recipes and rules of composition: a standard, pattern, or -- to use the Greek word -- a **paradeigma** which both measures the work and is measured by it. The pattern can be thought of as a single, immutable template to be traced or copied, which seems to be how Plato saw it, or it can be thought of as a mutable rhythm governing a pattern of movement, like the figure of a dance; a rhythm that is rediscovered with each new tracing of the figure. Artists -- and by "artists" I mean all makers: not just novellists, poets, composers and painters, but also cooks, gardeners, and seamstresses, insofar as they are not assembly-line workers -- are an infinitesmal and powerless minority in the population of the modern Western world, but this was not always the case. The civilization

of archaic Greece, which is to say Western civilization at its very roots, has been called a civilization of the artisan[4]. With the dawn of Greek thought, the pattern discovered, or made to appear, through making[5], was articulated as universal and this pattern eventually came to be understood as the one embodied in the cosmos as we understand the word.

Homeric usage of **kosmos**, as noted earlier, suggested an unnamed standard by which things were well (**eu**) according to, or not (**ou**) according to, order. Thersites' "measureless speech" in Book II of the Iliad is, like his mishapen body, disorderly, **ou kata kosmon**[6], and when Achilles slays a sheep to cook for his guest, Priam, in Book XXIV, "his comrades flayed it and made it ready **eu kata kosmon**, and sliced it cunningly and spitted the morsels and roasted them carefully . . . "[7]. It is the speaking that reveals the absence of **kosmos** in the first instance and the preparation of food that reveals its presence in the second:

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4. See P. Vidal-Naquet, intoduction to Frontisi-Ducroux, p. 12, and also Burford.

5. See p. 129, "Building, Dwelling Thinking", in Heidegger, 1971: "The Greek for 'to bring forth or to produce' is **tikto**. The word **techne**, technique, belongs to the verb's root **tec**. To the Greeks **techne** means neither art not handicraft but rather: to make something appear . . . The Greeks conceive of **techne**, producing, in terms of letting appear". Heidegger does not note that the primary meaning of **tiktō** is to engender or give birth.

6. Il. II.214.

7. Il. XXIV.622.

it is through making[8] that **kosmos** appears, or does not. Indeed **kosmos** seems to share the very identity of making. After Odysseus has applauded the minstrel Demodocus in Book VIII of the Odyssey, saying "above all mortal men do I praise you . . . for liēn (exceedingly) **kata kosmon** do you sing of the fate of the Achaeans", he then goes on to ask the bard to change his theme and "sing the building (**kosmon**) of the horse of wood"[9]. The **kosmon** of the Trojan horse translated by A.T. Murray, the Loeb translator, as its building, is taken in this context as the neuter present participle of the verb **kosmeō** (arrange, order, adorn). However, the line could also, with perfect grammatical correctness, have been translated as "sing the order of the horse of wood", with **kosmon** understood as the accusative of the masculine noun **kosmos.** There was, it must be remembered, no grammar[10] in the Greece of the eighth century B.C. when the Homeric epics were transcribed, and it was only much later that **kosmon** as the act of arranging was

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8. Hannah Arendt, among others, argues that speech for the Greeks was equivalent to action, and different from making. But the evidence in Homer is incontestable that words were thought of as things produced or made: a stock phrase that appears countless times in both the Iliad and Odyssey is the phrase "he (or she) spoke winged words,-- **epea pteroenta**", spoken words are winged and fly across the barrier of the teeth (**herkos odontōn**); unspoken words are wingless -- **aptera.**

9. Od. VIII.488-493.

10. There was, of course, grammar as embodied in usage, but grammar as the classification parts of speech apart from usage did not yet exist.

distinguished, grammatically, from **kosmon** as the fact of arrangement[11]. This same argument makes it possible to read the phrase **kata kosmon** both as "according to arranging" and as "according to order, or arrangement".

Kosmos can also be read as adornment, especially feminine, for indeed "cosmetic" comes from **kosmos**. **Chrōs** (skin or colour) is the Homeric word for the living body, which was understood as a surface[12] and the bearer of visibility. For the Greeks, for whom appearing was surface, with **epiphaneia** a word used for both, when a woman **kosmēse**, adorned, herself, she clothed her **chrōs** in a second skin or body, analogous to the living surface-body so clothed. If women, in ancient Greece, were essentially invisible, cosmetic **kosmos** made them visible[13].

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11. The Greeks favored present participles, using them ubiquitously both as adjectives and as nouns -- to apply grammatical classifications that did not yet exist when the language was formed, and this can be seen as especially revelatory of the Greek consciousness of emergence. A particularly good example is the word **phainomenon**, which is the medio-passive present partciple of the verb **phainō** (come to light). **Phainomena**, literally, are "comings to light", not phenomena or "appearances".

12. In Homer, where **soma**, the later term for body means corpse, **chrōs**, skin, is the word used to designate the living human body: ". . . and **chrōs** does not mean skin in the anatomical sense (the skin or pelt that can be skinned off an animal, **derma**) but skin in the sense of a surface that is the bearer of colour and visibility" (Voegelin, OH II, p. 102). See also Snell, p. 6.

13. Without wishing to embroil myself in the thorny problem of translation, I should like to point out that the translators have Homeric men array themselves in armour, whereas they have Homeric women adorn themselves with clothes and jewellery -- a distinction not present in the

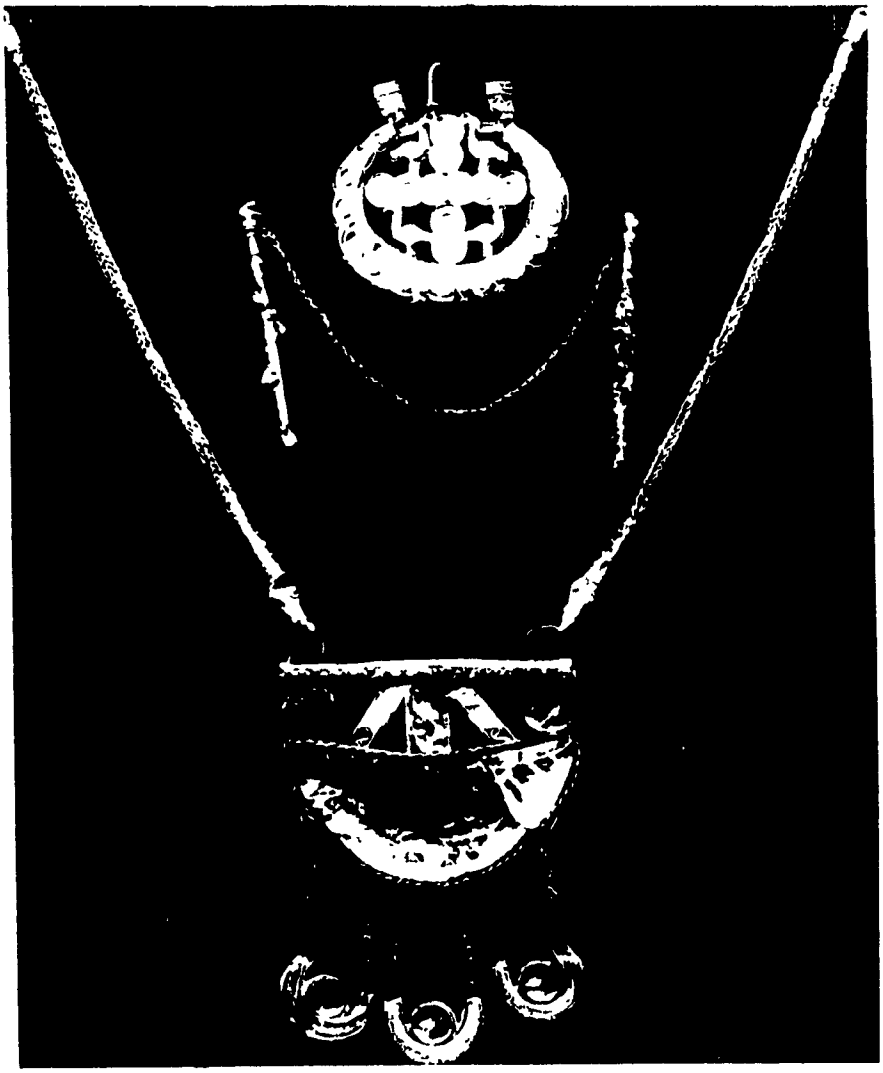

Figure 6

So, for example, when Hera sets out to seduce her husband Zeus[14], she washes and perfumes herself, and plaits her hair, and clothes herself in a robe wrought for her by Athena with cunning skill (**daidala polla**), fastening it with gold brooches, and belting it with a girdle with a hundred tassles. In her pierced ears she hangs earings "with three clustering drops", under her feet binds fair sandals, and over all, drapes a "glistening veil, white as the sun". And when, with the donning of these wonderfully-crafted artifacts, she had, according to Homer, **thekato**, made or set uþ, all **kosmos** about her body (**panta peri chroi. . . kosmon**)[15], she went to ask Aphodite to give her love and desire, in order to accomplish her mission of persuading Zeus to side with the Achaeans against the Trojans.

Similarly, in the Homeric hymn to Artemis, when the goddess goes to Delphi to order (**artyneousa**) the lovely dance (**choros**) of the Muses and Graces, she "hangs up her curved bow and her arrows", there to command (**hēgetai**), gracefully leading the dances, having **kosmos** about her body

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Homeric vocabulary, where the verb **kosmeō** is used for both; a distinction, moreover, that carries unfortunate suggestions about the superfluity of feminine **kosmos**, and of the whole notion of ornament itself. **Kosmos** is used far more frequently for female attire than for male attire, however.

14. Il. XIV.170 ff.

15. The Loeb translation (A.T. Murray) reads "when she had decked her body with all adornment".

(**peri chroi kosmon echousa**)[16]. In this passage especially, but also in others where female divinities adorn themselves, or, as Homer actually describes it, wrap themselves in **kosmos**, in order to go dancing, the suggestion is clearly that the ordering of the dance is a reflection of their adornment, or second skin, and vice versa. As **kosmos** clothes the body to make it appear, so, through the dance, **kosmos** clothes the ground to make it appear, even as, in the Homeric Hymn to Selene, the radiance of the moon (of all the heavenly bodies the most feminine) "is shown from heaven to dance around -- or clothe -- (**elissetai**) the earth, and much **kosmos** arises from her shining light"[17].

Kosmos, in Homer, but especially after him, is also political or moral order[18], and it is this order, the order of the newly-emerged **polis**, that Jean-Pierre Vernant has claimed the Ionians, beginning with Anaximander, made spatial and geometric and projected on to the universe[19]. However, the recognition of **kosmos** already, as I have argued, assumed as a standard of rightness external to itself. As will be discussed more fully in due course, the

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16. H. XXVII.15. Loeb (Hugh G. Evelyn-White) has "and heads and leads the dances gracefully arrayed".

17. **polus d'hypo kosmos orōren aiglēs lampousēs** (H. XXXII.4), which Hugh G. Evelyn-White renders "great is the beauty that ariseth from her shining light".

18. See Kahn, p. 221, ff. Kahn's appendix on **kosmos** (p. 219-230), is a helpful survey.

19. Vernant 1982, ch. 8.

city itself was made, and continually remade in a making that was itself a discovery of **kosmos**. The order of the **polis** was not immanent, and then projected as transcendent, as Vernant's argument implies. Rather, I would say, the making of the city implicitly assumed a transcendent order from the very outset.

The city was an artifact, and the **dēmiourgos**, at least in the early stages of emerging Greek consicousness, was as much the legislator who made public order as the craftsman made the **kosmos** of things. Indeed, as we shall see, craftsman and legislator were generically the same.

So, I would claim, the public or political order, which Vernant sees as being launched into the heavens with the Anaximander and the dawn of Western thought, is part of a more general order of making, or making appear, of which the **kosmos** of the **polis** is only one aspect. The circular seating of elders in assembly, (the very emblem of political **kosmos**) is only one kind of order, for as the thirteenth Homeric epigram puts it

> Children are a man's crown, towers of a city; horses are the **kosmos** of a plain, and ships the **kosmos** of the sea. Wealth will make a horse great, and reverend princes (**basileis**) seated in assembly (**ein agorēi**) are **kosmos** for folk to see. . .

If I have been rather insistent in my speculations about the physical existence of Anaximander's cosmic model as a three-part artifact, it is because the very roots of his cosmology, which is inseparable from the thought

expressed in the fragment, can be seen to lie in the actual making, in the **kosmos**, of that model. If it is accepted that the model was indeed made, and that its making was the generation, the **genesis**, of the speculation, the implication is not that the form the model took was then projected on to the heavens. Rather, I would insist, the order of the heavens, (which, being geocentric, was of course in no way scientifically accurate) was simultaneously made to appear and <u>discovered</u> <u>through</u> the making. The details of the model's construction may have been as I have imagined them-- or they may not. This is basically irrelevant. Anaximander's cosmic model, as he himself was well aware, could have taken any number of forms, for as he speaks of them, the heavens and the **kosmoi** within them are plural[20], and part of his speculation was the positing of the existence of unlimited worlds.

His model, once made, was seen to have coherence, and would have confirmed the configuration of a universe known from experience to have the Earth, and Hellas, at its centre. Because of this, and because there were no others, Anaximander's became <u>the</u> model: in Plato, the **paradeigma** for a **dēmiourgos** whose creation of **kosmos** was no longer a question of making a world appear, but a matter of

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20. See Anaximander B1, above: ". . .some different boundless nature, from which all the heavens arise and the **kosmoi** within them".

representing one through the duplication of an immutable pattern.

2. DAIDALA

F.M. Cornford and Jean-Pierre Vernant, among others, have argued that much of the mythical world still clings to Anaximander's speculation, and indeed, although the emphasis here diverges somewhat from theirs, this has been assumed in the present discussion, in which it is postulated that the compactness of mythical experience continues to be the basis for the differentiated expressions of Anaximander's work. And this, I claim, holds true both for the speculation and for his built work, whose sense the B1 fragment articulates in prose.

The built work (apart from its theory[21]) further reflects a mythical understanding, for this cosmic model, while acting as the **paradeigma** for all cosmologies until the time of Galileo, was also a **daidalon**, which shared most, if not all, of the essential features attributed to the creations of the mythical Daedalus.

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21. The possibility of understanding Anaximander's book as an architectural treatise will be discussed in the conclusion of this thesis.

Cutting, Assembly, Harmonia

Françoise Frontisi-Ducroux concludes[22], after a detailed study of Homeric usages, that the word **daidalon**, in its most limited and primitve applications, denoted a cutting-up or cutting-out (decoupage), either in wood or in metal, and this decoupage was invariably associated with the complementary notion of adjustment, of fitting together. Armour, notably that of Achilles, whose bronze, gold and silver shield was wrought in five layers by the divine smith Hephaestus, was particularly **daidalon**, for indeed armour was an assembly of cut out pieces. Works of carpentry, especially ships, were also **daidala**. It is significant that **hylē**, the "matter" later set up in opposition to the intelligent formative principle in the Aristotelian form-and-matter differentiation[23], was first, in Homeric usage and even later, forest or woodland, or, more specifically, wood or timber[24]. When Odysseus the **tecton**, the boat-builder, builds his raft in Book V of the Odyssey, assisted by the nymph Calypso (who, incidentally, has dressed very

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22. Frontisi-Ducroux, p. 78.

23. The form and matter opposition is one that Heidegger takes great exception to in his essay "The Origin of the Work of Art". Cf. Heidegger 1975, p. 26 ff.

24. Il. VII.418, XI.155; Od. V.257, IX. 273, XVII.316 and Hdt., I.203.

carefully for the occasion[25]), the timber he cuts and fits together is **hylē**.

> Twenty trees did he fell, and trimmed them with the axe, then he cunningly (**epistamenōs**) smoothed them all and made them straight to the line (**epi stathmēn**). Meanwhile Calypso, the beautiful goddess, brought him augers; and he bored all the pieces and fitted them to one another (**harmoniēsin arēren**) . . .[26]

If, in search of evolutionary causes, one reads backwards from the later understanding of **hylē** as brute matter[27], it is deceptively simple to claim that the pre-classical understanding of **hylē** as forests and timber was that forests and timber were "nothing but" the unformed matter of boats or that **hylē** as firewood[28] was "nothing but" the fuel that feeds the flame. This would be very misleading. In pre-classical Greece, **hylē**, as forest, timber or firewood, was part of a divine and deathless **physis**. **Hylē**, wood, was cut up, probably with all the circumspection devoted to the cutting up of a sacrificial victim, to be re-made, in order that it might reappear in another guise -- as a boat or, even more magically, as flame

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25. "and the nymph clothed herself in a long while robe, finely woven (**argypheon**) and beautiful, and about her waist she cast a fair girdle of gold, and on her head a veil above" (Od. V.233-35). Here too the **kosmos** of feminine attire reflects or is relfected by, the **kosmos** of making.

26. Od. V.243-47.

27. By the second cedntury A.D., **hylē** had become a medical term refering to the excretions of the human body.

28. As in Il. VII.418 and Od. IX.234.

-- even as reassembling the bones under the flayed skin of the cut up, sacred, sacrificial animal made it "reappear"[29].

The adjective **arērōs**, meaning well-ajusted or perfectly fitted together is, apparently, a very old word whose use is traceable as far back as the Mycenaean Linear B script[30]. In the word **arērōs** is both the etymological and experiential root of the whole notion of **harmonia**: in Homer a ship-building term with special reference to the joints[31], which, from Plato, or perhaps Pythagoras, onwards, was forged link by link into the Great Chain of Being[32], one of the most persitent images of cosmic harmony in the whole history of Western culture.

Anaximander's model must, as I have imagined it, been **arērōs**, in the oldest sense of the term. Although it did indeed deliberately set out to be a cosmic model, and although it did indeed, for the first time, reval a clear notion of fixed proportions[33], it was, I would suggest, because, as a model it was **arērōs**, that Anaximander's

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29. On sacrificial practices see, especially, Detienne and Vernant, but also Burkert 1972, Durand and Hersey.

30. Linear B, the earliest written form of the Greek language, dates from 1200 B.C. or earlier. The Linear B script, preserved on clay tablets of the Mycenaean era, was first deciphered by Carl Blegen, an architect, in 1931.

31. See above, and Od. V.361.

32. On the Great Chain of Being, see especially A.O. Lovejoy, The Great Chain of Being, (Cambridge, Mass., 1936).

33. On the proportions of Anaximander's cosmology, see Kahn, p. 86 ff. and Kirk and Raven, p. 134-37.

construction was able to reveal all that other unseen harmony. It is, to my mind, crucial for the understanding of this model that tne **hetera tis physis apeiros** of Anaximander B1, the "some other boundless nature" that is the source of the heavens and the **kosmoi** within them, is thought of in navigational terms as steering, guiding or acting as helmsman for (**kubernan**) all things. Moreover, as Françoise Frontisi-Ducroux points out[34] with reference to the passage in the Odyssey just cited, boat-builder and navigator were often one and the same.

In the wave of enthusiasm for the unseen harmony disclosed, as I believe, through the model (Pythagoras followed hard upon Anaximander), the role the model played was forgotten by Western thinkers, to the point where today some philosophical historians even doubt that the celestial sphere, the first of its three parts, ever existed[35].

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[34]. Frontisi-Ducroux, p. 152.

[35]. Kirk and Raven, who question the existence of the celestial sphere, base their doubts on the assumption that the model would have been an attempt to illustrate an abstract cosmological theory -- that practice is applied theory, in effect. They claim that the theory, being exceedingly complex, would have been impossible to illustrate. My speculation that the model came first immediately dispels this objection, since a very complex theory can be developed from a relatively simple model. There need be no one-to-one correspondence.

Weaving and Movement

In the Odyssey, generally held to be of later composition and/or transcription than the Iliad[36], the notion of things that are **daidala** -- "cunningly-crafted", and "curiously-wrought" are two common translations of the word -- comes to apply more and more frequently to textiles. In Hesiod this application becomes virtually exclusive, with the gold crown of Pandora referred to earlier[37] a notable exception. Textiles that are **daidala** are so qualified when they are tightly-woven, and have a luminous sheen. Like the metal plates of a warrior's armour, they shimmer with dancing light, and seem to have a life of their own, as do those other **daidala**, the **xoana**, or wooden cult statues, evoked at the very beginning of this thesis.

Textile **daidala** are often described as **poikilon**, which most translators render as "embroidered". However, Frontisi-Ducroux argues very convincingly[38] that the irridescent coloured patterns that made a cloth **poikilon** (and **daidalon**) were not embroidered, or applied over a pre-existing surface, but actually woven into the surface of the fabric itself. If so, the pattern would have appeared with

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36. The identity of Homer, and the dating of his epics continues to be a highly controversial issue. For an excellent summary see Voegelin, OH II, p. 68 ff. Voeglin's opinion is that the earliest date for the Iliad is about 750 B.C., with the Odyssey slightly later.

37. Th. 578.

38. Frontisi-Ducroux, p. 52 ff.

the surface of the cloth, whose making would have been an activity that entailed great skill and a highly complex pattern of movement of shuttle over loom. The word for weaving, or plying the loom, is **hyphainein**, which literally means to bring to light[39], and the word for surface, as noted earlier, is **epiphaneia**.

Pherecydes of Syros[40], the mythographer and theogonist active around the the middle of the sixth century B.C., and thought to have post-dated Anaximander, wrote, like Anaximander, in prose. In his myth of the wedding of Zas and Chthonie, Zas, as a wedding gift, clothes Chthonie, with "a great fair cloth" on which (or <u>in</u> which -- <u>en</u> **autōi**) he **poikillei** Ge, the Earth[41]. It is the woven cloth, or perhaps its very weaving, that makes Earth, with all its variegated, scintillating patterns, appear. Significantly enough, it is this mythical veiling of Chthonie, whereby Earth is made to appear, that the papyrus here cited claims as the first Anacalypteria, or <u>un</u>veiling, which was (and still remains) part of the traditional Greek wedding ceremony. The weaving of the cloth is an unveiling insofar as it is an appearing.

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39. From **phainō**, come to light.

40. On Pherecydes, see Jaeger p. 66 ff., Kirk and Raven p. 50 ff., Vlastos 1952, and Kahn's "Note: The First Greek Greek Prose Treatise" at the conclusion of his book on Anaximander.

41. Grenfell and Hunt, <u>Greek Papyri</u> Ser. II, no 11, p. 23. Cf. Kirk and Raven, p. 61.

Surface and Appearing

All the marvels Homer and Hesiod quality as **thauma idesthai**, "a wonder to behold", are each and every one of them, **daidala**. The metalwork, carpentry or weaving, that bring them to light, so that they may be beheld, do so through **kosmon**, which is simultaeously arranging, ordering and adorning. Craft gives things life, and it is no accident that **tiktein** is to give birth, **tektein**, to build, and **techne**, a letting appear[42].

Live body (**chrōs**) and dead body (**soma**) were two different things for the pre-classical Greeks -- not a single entity, the one animated, the other not. The living human body, as **chrōs**, was a skin or surface (**epiphaneia**) and an appearing. The Christians, much, much later called the divine Child's appearing Epiphany, but in the early Greek understanding such would have been the appearing of any child -- of any human being. This was not because the Greeks especially revered human life, in the modern sense, for children were systematically exposed at birth if the father deemed them undesirable, but rather because of the early Greek perception of, and keen sensitivity to, what was actually given in experience.

The divinity of Greek gods and goddesses rested on the fact of their always appearing, and never entirely disappearing, for gods were divine not by virtue of their

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42. Cf. Heidegger 1971, p 129.

always having existed, since being born, **genesis**, was the essential feature of everything, including gods. Gods were divine because they were **athanatos**, deathless. This unending appearing-ness of the Greek gods, their **genesis** which is life and movement, is what resided in the scintillating surface of the **daidalon**. Insofar as the appearing of the **daidalon** was understood as itself the product of reassembly, the **daidalon** must also have been understood as something that could always be remade. Thus, like the gods, and unlike the human person (**brotos**, mortal) the **daidalon** never entirely disappeared. Because it was itself a deathless appearing, the well-made, the cunningly-crafted, thing was able to reveal an unseen divine presence.

The deathlessness of a god or goddess was not contingent upon changelessness. Rather, the facility for appearing and reappearing under different guises was one of the most basic qualities of divinity. Indeed, Ovid retells the whole of Graeco-Roman mythology in terms of such changes in his Metamorphoses. As Odysseus says to Athena in a passage cited earlier[43], "Hard is it goddess, for a mortal man to know (**gnōnai**) thee when he meets thee, how knowing (**epistamenōi**) so ever he be, for thou takest what shape thou wilt . . .". That the god or goddess might be known, or

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43. Od. XIII.311-313.

recognized, as elusive, was, as has been emphasized, one of the fundamental reasons for tying down daedalean **xoana**.

Once a year the **xoanon** of the Samian Hera was unbound and hidden in a willow tree where it was then rediscovered and brought back to its shrine in the temple[44]. Whatever it had to do, and it was probably much, with the cyclical course of the seasons, this ancient ritual would also have been a yearly revelation of appearing-ness and reappearing-ness as essential to all that is divine. And lest the significance of the ritual eclipse the physical presence of the artifact, it should be remembered that it was through the **daidalon**'s appearing that divinity was revealed, and that without its presence, the ritual would not even have taken place.

Choros and Labyrinth

When the legendary Daedalus[45] fled Athens, his birthplace, because he was being prosecuted for having murdered his nephew Talos out of jealousy for Talos' alleged invention of the compass, Daedalus went to Knossos in Crete, where he took up residence in the court of King Minos.

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44. See Frontisi-Ducroux, p. 103.

45. For the Daedalus legend, see Diodorus Siculus IV.76-80, Ovid, Metamorphoses, VIII.151-259, and various locations in Pausanias' Description of Greece. Secondary sources include Frontisi-Ducroux Part II, p. 83 ff., and Perez-Gomez. The present very cursory summary does not account for the various versions of the story.

There he built the celebrated mechanical cow in which Queen Pasiphae hid herself in order to seduce the bull for which she had developed a passion, and from their unnatural union was born the Minotaur, a man with the head and neck of a bull. Minos then had Daedalus build the Labyrinth in which to conceal the monstrous evidence of his wife's infidelity. When Theseus, one of seven Athenian youths (**kouroi**) sent, along with seven maidens (**korai**), every nine years to Knossos as food for the Minotaur, he fell in love with Ariadne, Minos' daughter, and slew the Minotaur, with Ariadne's thread guiding his way back to the entrance of the Labyrinth from the Minotaur's lair.

Daedalus then built a **choros**, a dancing-floor, for Ariadne. Afterwards, Theseus and Ariadne fled Knossos, and upon their arrival at the sacred island of Delos, the birthplace of Apollo, they danced a dance cryptically known as the "crane dance".

It is in the **choros**, considered together with the Labyrinth, and the crane dance, which are placed by the legend at about the midpoint of Daedalus' career, that the whole notion of making and remaking, of appearing and reappearing is most transparently evident.

The earliest reference to Daedalus' **choros**, and the only reference to Daedalus in Homer, occurs at the end of the description of Achilles' shield in Book XVIII of the Iliad:

> Therein furthermore the famed god of the two strong arms cunningly wrought (**poikille** -- wove) a dancing-floor (**choros**) like unto that which in wide Knossos Daedalus fashioned (**ēskēsen**[46]) of old for fair-tressed Ariadne. There were youths dancing and maidens of the price of many cattle, holding their hands upon the wrists one of the other. Of these the maidens were clad in fine linen, while the youths wore well-woven tunics faintly glistening with oil; and the maidens had fair crowns, and the youths had daggers of gold hanging from silver baldrics. Now would they run round with cunning (**epistamenoisi**) feet exceeding lightly, as when a potter sits by his wheel that is fitted between his hands and makes trial of it whether it will run; and now again would they run in rows toward each other. And a great company stood around the lovely dance (**choros**), taking joy therein; and two tumblers whirled up and down through the midst of them as leaders in the dance.[47]

One of the many things this passage reveals is that **choros** is not only dancing-floor, or dancing place, but the dance itself. The word **choros** (or one of its compounds) is used nine times in the Iliad, but only once, at the beginning of this passage where the reference is specifically to Daedalus' construction, does it appear, unequivocally, to mean a place for dancing, and not the dance[48]. Now, although these kinds of statistics can be

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46. Past tense of the verb **askeō** (work curiously, form by art) frequently used in Homer with reference to the making of things that are **daidala**.

47. Il. XVIII.590-605.

48. In Il. XVI.183, Hermes is said to have fallen in love with Polymele "when his eyes had sight of her amid the singing maidens, in the **choros** of Artemis", which Loeb (A.T. Murray) renders as the "dancing-floor of Artemis", but in the context **choros** is more likely to mean "dance", especially since three lines earlier, Polymele is described as being "fair in the dance (**choros**)". Moreover, in another

seen as, at best, inconclusive, and at worst completely irrelevant, it is nevertheless, to my mind, significant that, in the later Odyssey, **choros** continues to refer to the dance, but appears several times as dancing-floor. There is one notable passage where Odysseus is among the Phaecians "famed for their ships"[49], whose beautiful cities, palaces, gardens (described as **kosmētai**[50]), and harbours Homer extolls, and to whom, says their king Alcinous, the banquet the lyre and the dance (**choros**) are dear[51]:

> Then stood up the masters of the lists (**aisymnētai**), nine in all, men chosen from among the people (**dēmioi**), who in their contests were wont to order all things aright. They levelled a dancing-place (**choron**) and marked out a fair wide ring, and the herald came near, bearing the clear-toned lyre for Demodocus[52]. He then moved into their midst and around him stood boys in the first bloom of youth, well-skilled in the dance, and they smote the goodly dancing-floor (**choron theion**) with their feet.

What Demodocus sings of, while the dancing is going on, are the inextricable bonds (**desmoi apeirones**[53]) which Hephaestos, the patron of craftsmen, forged to trap his wife

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location (Homeric Hymn to Aphrodite, 118), Loeb (Hugh G. Evelyn-White) translates the **choros** of Artemis as the dance of Artemis.

49. Od. VIII.369.

50. Od. VII.127.

51. Od. VIII.248.

52. This Demodocus is the same minstrel who sings so exceedingly **kata kosmon** of the fate of the Achaeans in the passage (Od. VIII.489) cited earlier.

53. Od. VIII.340.

Aphrodite and her lover, Ares, in the flagrant delit of their adulterous dalliance.

Diodorus Siculus uses the same adjective, **apeiros**, to describe the tortuous dead-end passages of Daedalus' Labyrinth[54], for **apeiros** means not only boundless, but also, like **aporia**[55], without escape, which is also to say unmeasured, or immeasurable. It is the measure of Ariadne's dance, the confused regularity of the "moving maze" traced by the passage of "well-taught feet"[56] which spins the thread that leads out of the Labyrinth, and goes on to weave another. The pre-classical Greeks could answer riddles, and interpret oracles, but they had no knowledge of problem-solving. In the still-living imagery of the Minoan murals, the Cretans, literally, take their death-dealing bulls by the horns, and dance with them. For the early Greeks, the dangers of **aporia** were not problems to be solved, but the basic pre-condition for artifice.

This fundamental understanding, which is what made the **epistēme** of the archaic period knowledge-as-skill, is what made the crane dance, or the Trojan game, both Labyrinth-

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54. IV.lxxvii.4.

55. **a-poros**: without passage.

56. Alexander Pope's inaccurate, but beautiful, translation of the **choros** passage in the Iliad describes the movement of Adriadne's dance thus:
Now all at once they rise, at once descend,
With well-taught feet: now shape, in oblique ways,
Confusedly regular, the moving maze.

dances under different names, and indeed all forms of mazes, so pervasive throughout archaic Hellas especially in relation to the founding of cities[57].

The narrative references to the Labyrinth all emphasize its aspect of confusion and what I have referred to as **aporia**. On the other hand, the image of the Labyrinth, as it appears on Cretan coins as well as in later representations, is not confused at all. It invariably has a very clear and regular configuration. The image of the Labyrinth is the **choros**.

The Western tradition has been to misunderstand the skillful embrace of **aporia** revealed through the construction of **choros** and Labyrinth as a question of imposing order on chaos. This is a misinterpretation whose roots may very well lie with the Romans[58]. Certainly, the Romans, those expert pavers of straight roads that for centuries sustained the march of the bearers of pax Romana, did not, like the early Greeks, trace paths through journeying. And it is Ovid who, in typical Roman fashion, latinizes Hesiod's

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57. See Rykwert, p. 143 ff.

58. There are some who view the creation myth of Plato's Timaeus as the imposition of **kosmos** on **chaos**, but these are not, in fact, Plato's terms. First of all the word **chaos** does not even appear in the dialogue, and secondly, when Timaeus' God brings all that is visible into order out of disorder (30a), the phrase is **eis taxin auto ēgagen ek tēs ataxias**, with **taxis** and its opposite, **ataxis**, the words for order and disorder, respectively.

Figure 7

coming-to-be of earth and sky[59], as the imposition of order on chaos. Ovid calls chaos a rudis indigesta moles, a crude, confused and shapeless mass[60], which, like the **hylē** of classical and post-classical Greek thought, is brute matter to be subdued and shaped.

This differs from Hesiodic **Chaos**, but how, exactly, is difficult to make precise, for Hesiod, to the despair of scholars, never actually says what **Chaos** is. He simply says that **Chaos genet'**, "**Chaos** came to be" -- first, before "wide bosomed earth"[61]. Later in the Theogony he explicitly says that **Chaos** is the space between heaven and earth[62]. This, together with the fact that the word **chaos** appears to derive from the verb **chaskein**, yawn or gape, has led scholars to identify **chaos** with a primordial gap or chasm, similar to the ginnunga-gap of Nordic mythology[63]. There are other passages in the Theogony which seem to identify **Chaos** with

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59. Met., Book I.

60. "Before the sea was, and the lands, and the sky that hangs over all, the face of Nature showed alike in her whole round, which state men have called chaos (quem dicere chaos): a crude, confused and shapeless mass (rudis indigesta moles), nothing at all save lifeless bulk, and warring seeds of ill-matched elements heaped in one" (Met. I.5-9). The second-century A.D. Greek sophist, Lucian, also intepretes **chaos** as disordered shapeless matter (cf. Kirk and Raven, p. 36-37), but by the second century A.D. Greece had already been part of the Roman Empire for some time. Ovid predates Lucian by over a century.

61. Th. 116.

62. Th. 700.

63. See Kirk and Raven, p. 38, Vernant 1985, p. 377 ff.

the murky underworld regions of Tartarus[64] giving it a dimension of obscurity and confusion which, on the most generic level, bears some resemblance to the chaos of Ovid's description. What is totally absent in Hesiod, however, is any suggestion that there is an opposition between **chaos** and **kosmos**, or order[65]. As Hesiod tells it, **Chaos**, simply, came to be first, necessarily, it would seem, as a pre-condition for the coming-to-be of heaven and earth. **Chaos** is certainly not the matter out of which heaven and earth are actually made, but neither is it, entirely, the featureless space into which they are born.

As is so often the case when one attempts to enter into the early Greek perception of things, the mistake to be avoided at all costs is an either/or kind of assessment: **chaos** is <u>either</u> a gap <u>or</u> a confused and shapeless mass. **Chaos** is both and neither. Confusion is a quality of early Greek **chaos** insofar as, until it is measured, **chaos** is immeasurable. But when earth and sky have come to be, **chaos** can become the space between them, because earth and sky have become its measure. Similarly, **chaos** under the guise of the human experience of **aporia**, is a pre-condition for the coming-to-be of both Labyrinth and **choros**, which are its embodiment and its measure.

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64. <u>Th</u>. 736 ff. and 831 ff.

65. Jaeger (p. 13) calls the opposition between **chaos** and **kosmos** "a purely modern invention". With Ovid in mind, I would call it a Roman one.

It was noted earlier that the word **choros** tends, with the passage of time, increasingly to mean dancing-place as well as dance. This seems to suggest a tendency toward localization of the purely temporal -- just as when Solon built the first agora in Athens at the beginning of the sixth century, it localized **agora**, which until then was an assembly of people, or when a little later, with Anaximander's map, **gēs periodos** localized both Homeric journeying (**hodos**) and the temporality of Achilles' shield. I think what can be detected in this is an important reversal in the very process of emergence.

Before Daedalus made Ariadne's dancing-floor in the Iliad (to extrapolate from the admittedly limited textual evidence), there was no thought given to the place for the dance. Dancing was dancing, and the measure of the dancing-floor was the measure of the dance itself. The place appeared with the dance and disappeared when the dance was over, and its independent status was not even an issue. When **choros** first becomes dancing-place, it does not cease to be dance, however. For in the passage cited, Homer says that on Achilles' shield Hephaestus **poikille** (wove) a dancing-floor like the one Daedalus made for Ariadne, but he does not say that the dancing-floor was made first and that only then did the dance take place. In fact, he says nothing about the dancing-floor at all; the description is devoted entirely to the dance. The dancing-floor seems to

emerge with the dancing of the youths and maidens, who, it should be noted are very **kosmetai**, in all their finery, and with the pattern of their movement. Hephaestus' handiwork is described in terms of weaving, which both reflects the weaving of the dancer's feet, and is reflected in the rythms of the poet's verse. Without these, the dancing-floor had, as yet, no surface and no appearing.

In the later passage cited from the Odyssey, Demodocus (and Homer) still sing while the young people dance. But this time, the sequence of the narrative clearly indicates that the "goodly dancing-floor" was levelled first.

Hesiod post-dates both the Homeric epics, and I would speculate that Hesiod's enigmatic **Hē toi men prōtista Chaos genet'**, "at the very, very first[66] **Chaos** came to be" as the pre-condition for the coming-to-be of "wide-bosomed Earth", is a reflection of the same emerging awareness that begins to demand that the place for the dance be a pre- condition for dancing.

When Hephaestus makes Achilles' shield, the construction is, as noted earlier, a temporal one, but in the sequence of Homer's narrative there is no suggestion that the construction of one of the shield's features depends on the previous construction of some other feature. There are, for example, two cities on the shield, one at

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66. **prōtistos** is the superlative of the adjective **protos**, "at the first". Th. 116.

peace, the other at war. Homer describes the city at peace first, but there is no suggestion that the appearance of the city at war in some way depends on the previous appearance of the city at peace. Homer simply says that there was one, and that there was the other. Whatever reason there may be for describing the city at peace first, it is not an evolutionary or teleological one. The shield is the cosmos, with the dance, as the last feature described, a kind of summation of its entire cosmic significance. Although the shield is temporal, in it there is as yet, to recall Anaximander's **chronou taxis**, no order of time.

In Hesiod'a Theogony, however, the order of time is the very pole and axis of the entire narrative. **Chaos** came to be, and then Earth, who gave birth to sky and sea, and so on, in a geneology that extends from the first Titans right down to Zeus. The recital of this geneology, in which each birth is dependent upon the previous one in the sequence, has as its purpose the legitimation of Zeus and his reign of Justice. Hesiod is unequivocal in the revelation of his intentions. The order of the cosmos, which here is the just reign of Zeus, hangs upon the sequential order of **chronos**, the rectilinear time of the upright, mortal, human person.

Figure 8

Wings and Navigation

> But Daedalus, they say, on learning that Minos had made threats against him because he had fashioned the cow, became fearful of the anger of the king and departed from Crete . . .[67]

There are two versions of Daedalus' escape from Crete. Ovid's is the more familiar one.

Daedalus made two pairs of wings, fastening "feathers together with twine and wax at the middle and bottom; and, thus arranged, he bent them with a gentle curve, so that they looked like real birds' wings"[68]. One pair was for himself, the other for his son Icarus, whom, before setting out, he cautioned thus:

> I warn you, Icarus, to fly in a middle course, lest, if you go too low, the water may weight your wings; if you go too high, the fire may burn them. Fly between the two. . . . fly where I shall lead (me duce carpe viam).[69]

The sequel is well-known. Icarus did fly too high, the sun melted the wax of his wings, and he fell into the sea near Samos and was drowned.

Diodorus acknowledges that "certain writers of myths"[70] do indeed give this, as he seems to consider it, dubious account of the story, but he tells another, apparently to

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67. Diodorus Siculus, IV.lxxvii.5.

68. Ovid, Met. VIII.193-5.

69. Met. VIII.204-208.

70. IV.lxxvii.7. The reference cannot be to Ovid, since Diodorus pre-dates him by a century, but must be to other mythographic sources now lost.

his mind, more authentic one. Daedalus and his son, with Pasiphae's help, escaped in a boat. It is Icarus' recklessness in disembarking on an island near Samos, henceforth called Icaria, that causes his death, and Daedalus then sails on to Sicily.

Pausanius[71] speaks of <u>two</u> boats:

> For when he (Daedalus) was fleeing from Crete in small vessels which he had made for himself and his son Icarus, he devised for the ships sails (**histia**) an invention as yet unknown to the men of those times, so as to take advantage of a favourable wind and outsail the oared fleet of Minos. Daedalus himself was saved, but the ship of Icarus is said to have overturned, as he was a clumsy helmsman (**kubernōnti amathesteron**).

According to this account, Daedalus invented sails, and Icarus died because he was a bad navigator.

Françoise Frontisi-Ducroux[72], in her discussion of this part of the Daedalus story, stresses the intimate connection between navigation and flight and notes that the making of wings and the building of boats have much in common, with the careful fitting-together of parts and the shaping of gentle curves essential in both cases.

Navigation, like the flight of Daedalus and Icarus, was guided by positions of the heavenly bodies[73], and moreover

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71. IX.xi.4.

72. Frontisi-Ducroux, p. 152 ff.

73. If Thales, and not Anaximander, is indeed considered the first philosopher, and if Thales did indeed write the "Nautical Star Guide" Simplicius credits him with, then one might conceivably claim that the first philosophical treatise was, in fact, a treatise on

the Greeks understood the speeding of boats across the water in terms of flight, for Hesiod instructs the navigator to "stow away the wings (**ptera**) of the sea-going ship neatly"[74] at the end of the season "when the Pleiades plunge into the misty sea". These **ptera** might be the boat's sails, whose invention Pausanias credits Daedalus with, but they could just as easily be the "shapely oars (**euēre' eretma**)" that Homer says are "as wings unto ships"[75].

Swift motion makes things winged, for the ships of the Phaecians in the Odyssey are said to be "as swift as a wing (**pteron**) or as a thought (**noēma**)"[76]. In Homer, spoken words, words that are addressed to someone, are winged words, **epea pteroenta**, a stock phrase that occurs repeatedly in the Iliad, the Odyssey and in the Homeric Hymns. Arrows that "leap from the bow string"[77], are also **pteroenta**[78], which has as much to do with the speed of their release from the tension between bent bow and taut string, as with the fact that they are feathered. When Achilles tries on the armour made for him by Hephaestus to see if it fits, "his

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navigation.

74. Works and Days, 628.

75. Od. XI.125.

76. Od. VII.36.

77. Il. XVI.773.

78. See also Il. V.171 and XX.68.

glorious limbs moved free, and it became like wings to him"[79], a source, presumably, of speed and strength.

Shipwrecked, or with wings dismembered by the heat of the sun, Icarus drowned because he was **kubernōnti amathesteron** -- literally "more unlearned in steering", more ignorant than his father, who had built both Labyrinth and **choros** and knew how to steer the middle course. So also did the wily Odysseus, who, like Daedalus, was possessed of **metis** (cleverness, skill), and was able, successfully, to steer his ship through the narrow strait between the man-devouring Scylla and the ship-swallowing whirlpool of Charybdis[80].

The western tradition has made the adolescent Icarus, with his defiance in daring to fly too high, the hero of the story, to the point where the mature Daedalus who made the wings and used them skilfully has all but been disappeared from the cultural memory of the West. Themes involving grand gestures, pride and fall, **hubris** and its chastisement pervade western literature. We are made to reach too high:

> Nature that fram'd us of four elements,
> Warring within our breasts for regiment,
> Doth teach us all to have aspiring minds. . .[81]

Or as Robert Browning would have it

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79. Il. XIX.386.

80. Od. XII.234 ff.

81. Christopher Marlowe, Tamburlaine the Great, II.vii.18-20.

Ah, but a man's reach should exceed his grasp
Or what's a heaven for. . .[82]

It is the Ovidian[83] version of the story with its account of the fatal soar toward the sun that is at the root of Icarus' enduring prestige, for the Icarus of the virtually forgotten navigation version, far from being a heroic symbol of doomed human aspiration, is an inept boy who cannot steer a boat properly. In the latter, probably more genuinely Greek, meaning of a legend that tells of a good navigator and a bad one, it is Daedalus who is the hero: Daedalus, whose credit is his skill in acknowledging danger and steering the middle course, not, like the Ovidian Icarus of tradition, rashly confronting danger head-on. It is significant that the West has chosen to remember Ovid's Icarus, along with Ovid's chaos.

In the myth of Zas and Chthonie mentioned earlier, the world is made to appear through weaving. This weaving has its counterpart in navigation, for in the great contrapuntal theme of the Odyssey, Odysseus plies the sea while Penelope plies her loom in Ithaca, and Odysseus' long sea voyage lets the world appear[84]. The terms provide ample corroberation,

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82. Andrea del Sarto.

83. Ovid was widely read in the Renaissance and greatly influenced many English Renaissance poets, including Marlowe, who has just been quoted, and who refers explicitly to the Icarus legend in the opening lines of Dr. Faustus.

84. It is significant that the transcription of the Odyssey in the eighth century B.C. dates from the period of Greek colonization.

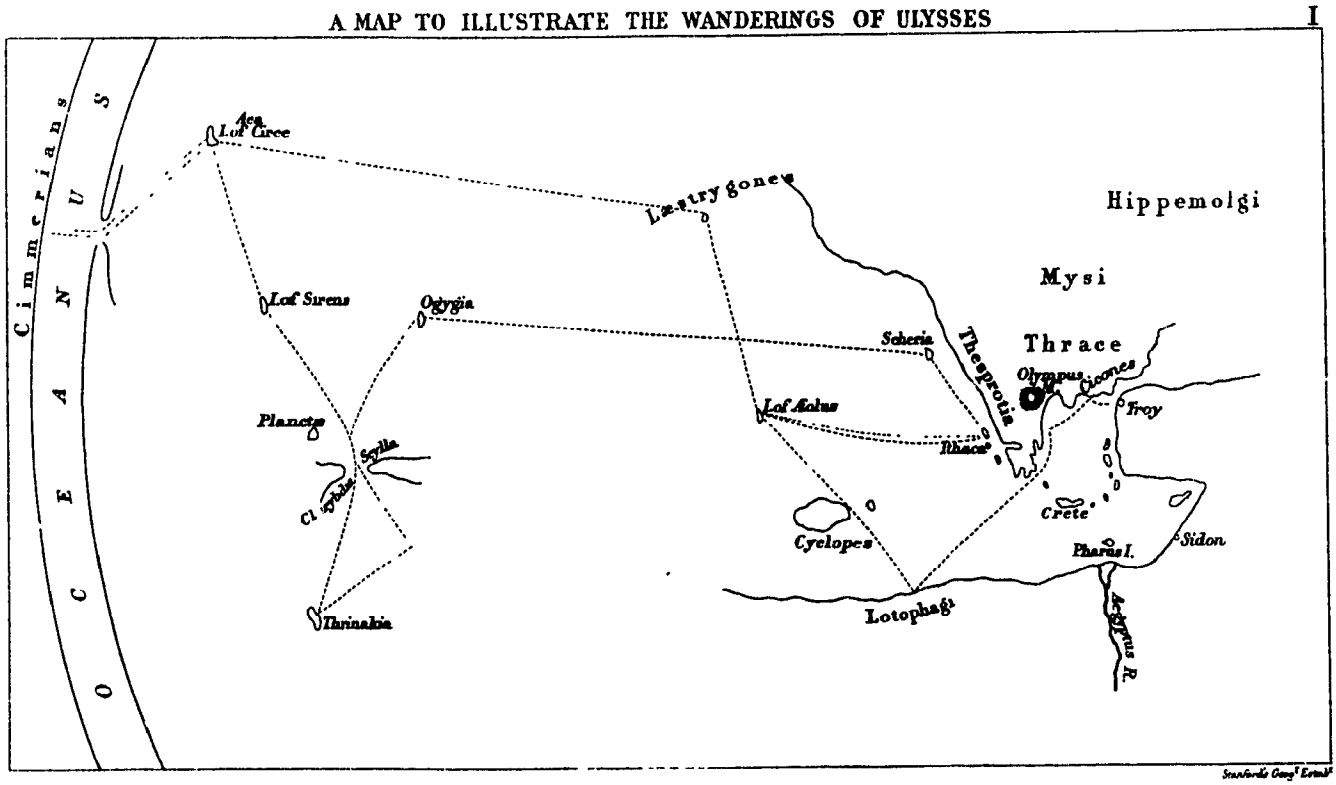
A MAP TO ILLUSTRATE THE WANDERINGS OF ULYSSES
I
Cimmerians
O C E A N U S
Aea
I. of Circe
Laestrygones
Hippemolgi
Mysi
Thrace
I. of Sirens
Ogygia
Scheria
Thesprotia
Olympus
Troy
Ilium
I. of Aolus
Planctæ
Scylla
Charybdis
Thrinakia
Cyclopes
Crete
Pharus I.
Sidon
Lotophagi
Aegyptus R.

Figure 9

since **histon** is both the mast of a ship and the beam of a Greek loom, which, like the mast, and unlike the beams of later looms, was upright, not horizontal. Furthermore, it is generally thought that Greek word **tecton** (carpenter, boat-builder) is the derviation for the word textile[85].

3. DAEDALUS DEMIOERGOS

> Sing clear-voiced Muse, of Hephaestus famed for skill (**klutomētis**). With bright-eyed Athene he taught men glorious crafts (**erga**) throughout the world -- men who before used to dwell in caves in the mountains like wild beasts. But now that they have learned crafts through Hephaestus famous for his art (**klutotechnēs**), easily they live a peaceful life in their own houses the whole year round[86].

In the early Greek view, it was craft that had brought humankind out of the bestial, into the civilized state, for a craftsman was a **dēmioergos**, a worker for the people. The word derives from **dēmios**, belonging to the **dēmos** (people and/or land, territory), and **ergon**, task, or work. **Dēmioergoi**, or **dēmiourgoi**, to adopt the contracted, Attic, spelling of the word, included not only craftsmen in the conventional, modern sense whereby Daedalus is understood as a craftsman. **Dēmiourgoi** were the whole class of public workers, that included heralds, prophets, doctors, bards, lawgivers and magistrates, as well as builders. They

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85. See Frontisi-Ducroux, p. 61.

86. Homeric Hymn to Hephaestus.

formed, in the Homeric city, a kind of middle class[87], below the land-owning nobles, and above the landless and tradeless **thetes**[88]. Like Daedalus and like Odysseus, they travelled, for as Homer says,

> Who, pray, of himself ever seeks out and bids a stranger from abroad, unless it be one of those that are **dēmioergoi**: a prophet (**mantis**), a healer of ills (**iētēra kakōn**), a builder of oars (**tecton dourōn**), or a divine minstrel (**thespis aoidos**) who gives delight with his song? For these men are bidden all over the boundless earth (**apeiros gaia**)[89].

The only strangers who were welcome in the ancient city were the itinerant **dēmiourgoi**.

The cave-dwelling Cyclopes in the Odyssey are uncivilized because they have no assemblies (**agorai**) or laws, because they do not till the soil or raise flocks, and because they

> have at hand no ships with vermilion cheeks (i.e. red-painted bows), nor are there shipwrights in their lands who might build them well-benched[90] ships, which should perform all their wants, passing to the cities of other folk, as men often cross the sea in ships to visit one another--craftsmen who would have made of this isle also a fair settlement.[91]

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87. Nothing to do with a bourgeoisie in the modern sense of "middle class"; the **dēmiourgoi** were the group halfway between the highest and the lowest.

88. See Glotz, p. 33 ff.

89. Od. XVII.381 ff.

90. This refers to the benches on which the oarsmen sat.

91. Od. IX.125 ff.

The craftsman, as discussed earlier, lets **kosmos** appear through the artifact. If we understand the craftsman as a **dēmiourgos** in the wider Greek sense of the term, yet retain the primordiality of the notion of craft in its more limited, physical, sense, as the early Greeks did when they claimed that there was no community, no civilization, without such craft, then it becomes quite clear that the emergence of Greek politics -- indeed of Western politics-- hinged upon the craft tradition[92], and upon how craft was understood. The **polis**, as we shall see, was understood and made as an artifact, and significantly enough in Sparta the **agora**, when it became the place of assembly, was called the **choros**.

In this regard it is worth recalling the **choros** passage from the Odyssey cited earlier

> Then stood up the masters of the lists (**aisymnētai**), nine in all, men chosen from among the people (**dēmioi**), who in their gatherings were wont to order all things aright. They levelled a dancing-place (**choron**) and marked out a fair wide ring. . .[93]

The **aisymnetai** who in Homer organize dances and games in

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92. This is something that Giambattista Vico (1670-1744), whose New Science is, among other things, a seminal exploration of the relationship between artifact and institution, understood particularly well. See The New Science of Giambattista Vico, unabridged translation of the Third Edition (1744), translated by Thomas Goddard Bergin and Max Harold Fisch, (Ithaca, New York, 1978).

93. Od. VIII.258 ff.

festivals[94], were, in Asia Minor, a political body who were not actually council members but who, as the masters of convention, or guardians of propriety, eventually became the supreme magistrature (**archē**) in many Ionian towns[95].

The political status of the **dēmiourgoi** declined in the classical era, and with it, the whole notion of allowing **kosmos** to emerge through making. As late as as the mid-fifth century B.C., Hippodamus of Miletus[96], the alleged inventor of orthogonal planning, who "cut up (**katetemen**)"[97] the Piraeus during the Periclean period, and the "first man not engaged in politics who attempted to speak on the subject of the best form of constitution"[98], advocated a population divided into three classes, one of artisans, one of farmers and one of the military. But the word used for artisan, at least in Aristotle's account, is **technitēs** (artificer or skilled workman) not **dēmiourgos**. Although given, by Hippodamus, a place in the political order, the craftsman was no longer seen to make it. And for all that Plato's cosmos is made by a **dēmiourgos** in the Timaeus, Plato

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94. See also Il. XXIV.347.

95. See Glotz, p. 91.

96. For Hippodamus, see Aristotle, Politics, 1267b24 ff., Vernant 1985, p. 202 ff., Rykwert p. 85 ff., and Burns.

97. Arist. Pol., 1267b24.

98. Ibid. 1267b30.

systematically downgrades the craftsman in his work.

The political dimension of craft is made explicit in the Daedalus legend, for when Daedalus reached Sicily after his escape from Crete "he built a city (**polin kateskeuase**) which lay upon a rock and was the stongest of any in Sicily, and altogether impregnable to any attack by force"[99]. If the story is read historically -- and this entirely possible -- it can be seen as a kind of epitome of the development of early Greek culture. In Athens, at the beginning of his career, Daedalus built statues, in Crete the Labyrinth and **choros**, and in Sicily, where the Greeks founded many colonial cities in the eighth and seventh centuries, Daedalus built a city.

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[99]. Diodorus, IV.lxxviii.2.

IV BETWEEN MOVEMENT AND FIXITY: THE PLACE FOR ORDER

It has so far been my argument that the theoretical event, so called, of sixth century Greece was an emerging awareness of order whose **genesis**, whose coming-to-be, was fundamentally grounded in the early Greek understanding of craft as that which allowed **kosmos** to appear through the movement of remaking. The built work of the carpenter revealed it through cutting and assembly, the textile embodied it through the rhythms of a shuttle moving over a loom, the dancing-floor was its appearing in the dance, and the boat, with its recreation of the flight of a bird, made it manifest through both its building and its navigation. The first articulation of this order was Anaximander's, but its discovery was that of Daedalus, for if Daedalus was the mythical first architect, it is through the Daedalus legend that the beginnings of Western architecture are to be understood.

1. THE POLIS

In a book called La naissance de la cité grecque: cultes, espace et société VIII-VII siècles avant J.-C., originally a doctoral dissertation based entirely on recent archaeological research, its author, François de Polignac, presents evidence for the formative role of what he calls la cité cultuelle, or ritual city, in the emergence of the

Greek **polis**. Athens, he stresses, was not, as is usually assumed, the paradigm, but rather the exception, being, with its centralized structure focussed on the Acropolis, something a of unique survivor from the Mycenaean period and its palace cultures[1]. The typical cases were the other Greek cities -- among them, the cities of Asia Minor, and also, especially, the colonial cities of Sicily, Magna Graecia, and the Black Sea area -- which only emerged in the VIIIth and VIIth centuries, after the so-called "dark age" (XIIth to IXth centuries) that followed the Dorian invasion and the subsequent collapse of Mycaenean civilization.

Irad Malkin, in his study of religion and Greek colonization, is vociferous in the defense of the rationally or functionally planned, as opposed to emergent, city, citing the case of Greek colonial foundations as evidence[2]. He also suggests that "colonialization contributed just as much towards the rise of the **polis** as it was dependent on this rise for its own existence"[3]. I cannot agree that the oikists, or colonial founders, were urban planners, as Malkin's argument implies. The regularity of street lay-outs Malkin brings to bear as evidence seems, to my mind, to have

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1. Pericles' funeral oration in Book II of Thucydides' History of the Pelopnnesian War stresses the autochthony of the Athenians, as well as their uniqueness.

2. "The need implied in colonization co create a society ex novo required conceptualizaing what the social unit was and what the ideal type should be." (Malkin, p. 263).

3. Loc. Cit.

much more to do with with the notion of allowing **kosmos** to appear through their rhythm than with planning, in the modern sense of the word. However, his argument for a reciprocal relationship between the development of **polis** and colonial city is convincing. Furthermore such reciprocality has important implications with respect to the role navigation and ships played in the making and thinking of the new **poleis**. If the colonial foundations influenced the emergent **poleis** as much as vice versa, the fact that Greek colonists were all, necessarily, sailors before they became settlers becomes very significant. Between the **metropolis**, or mother city, and the new foundation, the city, existed as a ship.

Weaving the City

What is noteworthy about the new **poleis**, in contrast to the old Mycaenean cities, is the presence of sanctuaries, which had never existed in the Mycenaean civilization, apart from the hearth of the quasi-divine King-father in the Mycenaean palaces themselves. There are tombs at Mycaenae and Knossos, but no temples. François de Polignac carefully maps the the archaeological traces of the VIIIth and VIIth century sanctuaries and shows how they fall into three categories[4]: urban sanctuaries, within the inhabited urban

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[4]. A similar classification was made be Vallet, and appears to have beome standard.

area itself; suburban sanctuaries, placed at the limit of, or at a short from distance from, the habitat; and extra-urban sanctuaries, which were not part of daily ritual, since they were located some six to twelve kilometres from the town at the very limit of the city's territory (**chōra**). Many of the most celebrated sanctuaries of the Greek world are indeed located on non-urban sites, and in view of this, it is impossible to maintain that the city grew up around the temple, which is the conclusion drawn if Athens, mistakenly, is taken as paradigmatic.

Rather, it would appear to be possible to extrapolate from de Polignac's argument the notion of a **polis** allowed to appear as a surface woven by the actions of its inhabitants: the sequential building of sanctuaries over a period of time, which at times stretched over decades, and the subsequent ritual processions from centre to urban limit to territorial limit and back again, in what can be seen as a kind of Ariadne's dance, magnified to cover a territory that was not called **choros** but **chōra**.

In the Iliad **chōrē**, which is the Ionic form of **chōra**, is a scant space (**oligē chōrē**) between, such as that between a horse and a chariot[5], or the one in which the corpse of Patroclus is dragged to and fro[6] after Hector has slain him, or the narrow rim of shoreline left for the Achaeans to

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5. Il. XXIII.521.

6. Il. XVII.394.

fight in[7]. The verb **chōreō** is used in the military sense of giving ground before the enemy[8].

Chōros[9], the masculine form of **chōra** or **chōrē**, in general, denotes a space that is somewhat more defined than the feminine **chōra**. In one notable passage Hector and Odysseus "measured out a [masculine] space (**chōron diemetreon**)"[10] for the single combat between Paris and Menelaus who then "took their stand near together in the measured space (**diametrētōi eni chōrōi**)[11]. Relevant in this context is the recall of the so-called Pyrrhic dance that was part of every Spartan soldier's military training.

In the Odyssey, where the word, more often than not, appears in its masculine, **chōros**, form, the tendency is for it to mean place as location[12], but also land, country or territory. According to the Aristotelian definition, **chōra**, translated by Loeb as "room", is similar to place (**topos**) which Aristotle says is the a "surface-continent (**epipedon**

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7. Il. XVI.68.

8. Il. IV.505, XII.406, XIII.324, XVI.588, XVI.629, XVII.101, XVII.316.

9. The transliteration convention adopted here uses "ō" for omega and "o", without a macron, for omicron. **Chōros** and **choros** are two different words in Greek, although my contention is that their senses converge at a certain point.

10. Il. III.315.

11. Il. III.344.

12. For example, Od. XXI.142: "Rise up in order all you of our company, from left to right, beginning from the place (**chōros**) where the cupbearer pours the wine".

periechon) that encompasses its content in the manner of a vessel"[13]. **Chōra** is different from void, **kenon** or **chaos**, which Aristotle equates, and says do not exist.

Now it is, of course, very dangerous to read backwards from Aristotle into the archaic period[14]. However, Aristotle's discussion of **topos** and **chōra**, does suggest a possible guess as to how the **chōra** of the **polis** may have been understood in earlier times as a territory made to appear through a continual remaking, or re-weaving of its encompassing surface, just as the world itself was made to appear when the colonists' ships plied the seas.

In the same chapter of his Physics, Artistotle notes[15] that Plato too identified **topos** and **chōra** in the Timaeus. Plato says that after the "first kind", "self-identical form (**eidos**), ungenerated and and indestructable", and the "second kind": the object perceptible by sense "becoming in a place (**topōi**) and out of it again perishing"[16], is a "third kind":

> "ever-existing place (**chōra**) which admits not of destruction and provides room for all things that have birth, itself being aprehensible by a kind of bastard reasoning by the aid of non-sensation, barely an object of belief; for . . . it is somehow necessary that all tha exists should exist

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13. Phys. 212a27.

14. See, especially, Harold Cherniss's discussion in Aristotle's Criticism of Presocartic Philosophy.

15. 209b14 ff.

16. 52a.

> in some spot (**en tini topōi**) and occupying some place (**ketachon chōron tina**) and that that which is neither on earth nor anywhere in the heaven is nothing.[17]

Plato's **chōra**, the receptacle of Becoming, is eternal and indestructible, but the **chōra** of the nascent, archaic **polis** was not. The archaic **polis** was an uncertain place that needed to be anchored at the strategic points of centre, middle ground and outer limit by the new sanctuaries. It was not a vessel with a fixed form, but, like appearing surface of a woven cloth, had continually to be made to reappear.

When Irad Malkin discusses the choosing of sites for the new sanctuaries in colonial cities, he refers, as evidence for the oikists' functional approach, to a certain passage from Artistotle's Politics[18]. The Barker translation of this passage reads as follows.

> This site (**topos**) should be on an emminence conspicuous (**epiphaneia**) enough for men to look up and see goodness (**aretē**) enthroned (**ikanōs**) and strong enough (**erymnoterōs**) to command (**geitniōnta**) the adjacent quarters (**merē**) of the city.

"This conspicuousness," says Malkin, "seems straightforward and signifies prominence and impressiveness. . . as a criterion for choosing the site of a sacred area". A close

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17. 52b.

18. Arist. Pol. 1331a28-30. Cf. Malkin p. 147-48. Aristotle, who wrote the passage nearly three hundred years after the colonization period, was talking about the **polis** in general not about colonial cities as such.

look at the original Greek[19] reveals nothing so straightforward. First of all, in the original Greek there is not one word about looking up, or about the **topos** being "on an eminence": these are the translator's interpolations. Secondly, **epiphaneia**, a word already discussed at some length, has only a marginal relationship to conspicuousness. **Epiphaneia** is appearingness (and also surface), and that this appearingness or coming-to-light should be read as "prominence and impressiveness" is also an interpolation, and a rather heavy-handed one at that. Thirdly, **aretē**, goodness, is **ikanōs**, which is not to say "enthroned" but reached, fulfilled or attained in a becoming or appropriate way. And, finally, **geitniōnta** is a participle of the the verb **geinomai**: to be born.

Thus, a legitimate alternative reading of the passage might be: "The place should be such as to have **epiphaneia** so as to see goodness fulfilled and strengthened, so that the regions of the city might come to be". If Aristotle's view on the choosing of temple locations can indeed be taken bear traces of how these sites were in fact chosen in the early colonial cities, it is a view which, when read with a concerted effort to think Greek rather than functional modern, entirely sustains what I have been attempting to articulate about the weaving of the city.

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19. Pol. 1331a28-30: **eiē d'an toioutos ho topos hostis epiphanian te exei pros tēn tēs aretēs thesin ikanōs kai pros ta geitniōnta merē tēs poleōs erymnoterōs.**

Figure 10

The colonial oikist's authority came from the Delphic oracle, which is to say from the god Phoebus Apollo,

> And Phoebus it is that men follow when they measure (**diemetrēsanto**) cities; for Phoebus evermore delights in the founding of cities, and Phoebus himself weaves (**hyphainei**) their foundations.[20]

The <u>Peplos</u> of Athena

Athens, it has been noted, was the exception among Greek city-states because, as a centralized survivor from the Mycenaean period, it had not emerged through the building of "extra-urban" sanctuaries by immigrant populations[21] as the other Greek cities had. The Athenians, as Pericles stresses in the funeral oration, were autochthonous: "this land (**chōra**) of ours in which the same people have never ceased to dwell in an unbroken line of successive generations . . ."[22].

It was a generation before Pericles, in the early fifth century, that Themistocles "had the audacity to suggest that the Athenians should attach themselves to the sea (**tēs thalassēs anthektea**) and in so doing lay tha basis for their

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20. Callimachus, Hymn to Apollo; cf. Malkin p. 142.

21. Even the Ionian cities were, in a sense, colonies, since they were established by Achaeans who fled continental Greece after the Dorian invasion. See also Malkin, p. 114: "Greeks in the fifth century did not distinguish between what we may define as the migratory period of the Dark Ages and the colonization. The former was conceived in terms of the latter."

22. Thuc., II.xxxvi.2.

empire (**archē**)"[23]. With this attachment to the sea, accomplished in a very literal way by the building of the Long Walls that connected Athens to the Piraeus, Athens became a sea power, and the receptacle for the wealth of Hellas, which included not only grain and gold but people, both craftsmen who formed the core of the resident alien population of metics, and thinkers from Ionia, by then overrun by the Persians.

It was only then, in the classical period, that the Athenians began to develop their non-urban sanctuaries, to use de Polignac's term, such as the Artemesion at Brauron at the urban limit, and the sanctuary of Demeter at Eleusis in the territory[24]. Athens had not been woven, the way the new city-states were. Athens was the pre-existing dancing-place (**choros**), or fixed receptacle (**chōra**) for a **polis** made to appear through a dance that had been discovered elsewhere.

The memory of this dance was preserved in the festival of Athena, in the yearly Lesser (**mikra**) Panathenaea and the Great (**megala**) Panathenaea that took place every four years. Scholars disagree as to which were yearly and which only four-yearly events in the unfolding of the ritual, but the general outline of the festival, as it took place in classical times, is as follows.

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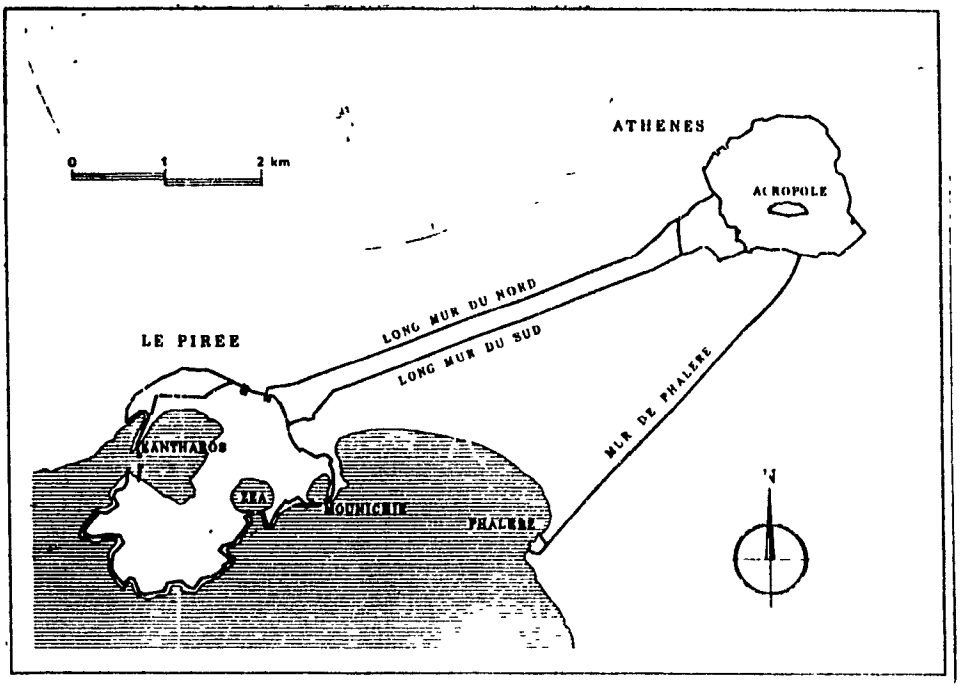
23. Thuc., I.xciii.5.

24. See de Polignac, pp. 88-89.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ATHENES
ACROPOLE
LONG MUR DU NORD
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Figure 11

Nine months before the feast, on the festival of Chalkeia, which was the feast of Hephaestus, the patron of craftsmen, two of the four **arrephoroi**, priestesses of Athena, initiated the weaving (**hyphainein**) of a new **peplos**, or robe, to clothe the ancient wooden statue (**archaion agalma**) of the goddess, whose name, Athena, Karl Kerényi has suggested, may be linked to certain very old words for different kinds of receptacles[25]. The draperies of this primitive, olive-wood image were not carved, as they were on the colossal gold and ivory Athena of the Periclean period made by Phidias, nor were the other items of her apparel. These included a crown (**stephanē**), a neck band (**ochthoibos**), five necklaces, a golden aegis and a golden gorgoneion (head of Medusa, possibly attached to the aegis). In her hand she held a golden libation-bowl (**phialē**). Somehwere in the ensemble there figured a golden owl.[26]

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25. See Kerényi, p. 28: "An acceptable meaning for the word 'Athene' is yielded only if one dares to reach for an old forgotten vocabulary, which in several instances has turned out to be the common property of the pre-Greek inhabitants of Greece and the Etruscans of Italy. From the sacred language of the Etruscans have been preserved such words as <u>althanulus</u>, 'holy vessel of the priest'; <u>atena</u>, 'clay beaker used in sacrifice', and <u>attana</u>, 'pan'." Kerényi connects this etymology to the "extraordinary significance of ceramics for prehistoric and historical Athens" (p. 29).

26. The inventory is that given by Herington, p. 23. It should be noted that the **archaion agalma**, the ancient statue, was "adorned" (**kosmetai**) with clothes and jewellery, whereas Phidias colossal and extremely costly creation, was "arrayed" (**kosmetai**) in armour.

Pausanias, whose description of Phidias' celebrated statue is detailed, but expresses no particular reverence[27], says, on the other hand, nothing about the appearance of the ancient statue, except to note with awe

> "the most holy thing (**hagiōstaton**) . . . is the image of Athena which is on what is now called the Acropolis but in early days (was called) the **polis**. A legend concerning it says that it fell from heaven . . .[28]

The Panathenaea usually lasted for four days and began on the final days of the lunar cycle, continuing through the moon's disappearance, and culminating at the appearance of the new moon[29], with the famous Panathenaean procession immortalized in the frieze that surrounded the **naos** of the Parthenon. The procession (**pompē**) began at sunrise with the participation of the entire Athenian populace. It set out from the Cerameicus, the **deme** of Athens adjoining the Dipylon Gate, proceded to Eleusis, and then returned to the Acropolis[30].

The new **peplos** was spread like a sail above a car either constructed like a boat, or one that was indeed a boat, which must have been mounted on wheels. Pausanius

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27. I.xxiv.5.

28. I.xxvi.6.

29. See Kerényi, p. 40 ff.

30. See Farnell, p. 297 ff.

mentions a Panathenaic ship that was noted for its speed[31]. The ancient wooden image of Athena Polias, by classical times located in the Erectheion, was clothed in her new robe, and there followed the sacrifice of oxen and the sharing of the flesh of the victims among the people, with further celebrations that included dancing, and other contests.

The meaning of all this, in the light of everything discussed so far, is acutely transparent: the nine months' gestation of the new **peplos** which was a woven (**hyphainein**) surface-appearing, an **epiphaneia**; the festival whose culmination coincided with the epiphany of the new moon ("much **kosmos** arises from her shining light"[32]); the **peplos** that, before it clothed the statue, was the sail of a swift ship in the **pompē** in which the Athenian people remade the city by weaving their way from the Cerameicus, known for the manufacture of pottery vessels, to Eleusis and back to the Acropolis; the re-appearance, or rebirth, through her being clothed, of bright-eyed (**glaukōpis**)[33] Athena, who is accompanied by her owl (**glaux**), a bird known for its ability

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31. I.xxix.1: "Near the Hill of Ares is shown a ship built for the procession of the Panathenaea. This ship, I suppose, has been surpassed in size by others, but I know of no builder who has beaten the vessel at Delos, with its nine banks of oars below deck."

32. Homeric Hymn to Selene, 4. See above.

33. **Glaukōpis**, "bright-eyed" or "of the flashing eyes" is a fixed epithet for Athena.

to see in the dark; and, of course, the dances -- the **kyklikoi choroi** -- and the sacrifical meal that together reaffirmed community.

The **peplos** was the central feature of the feast, as is underscored by the locating of the relief illustrating the clothing of Athena in her new robe directly above the entrance to the temple as the central feature of the Parthenon frieze.

In the Iliad, Hecuba, offers to the Athena of the Trojan citadel a new **peplos**, among the **peploi** in her treasure chest, "the one that was fairest in its weaving (**poikilmasin**) and amplest, and shone like a star"[34]. With her offering, Hecuba begs the goddess to save Troy. "'. . . Take pity on Troy and the Trojans' wives and their little children'. So spoke she praying, but Pallas Athene denied her prayer"[35]. Athena refused Hecuba's gift of the **peplos**, the city ceased its appearing, and Troy was destroyed.

Ships and City

"Well-walled Troy", the "great city of Priam", was denied Athena's favour, and Troy perished. The Achaeans, however, were granted her support. It is clear that the fleet of Achaean ships beached at the mouth of the Meander during the ten-year siege of Troy was thought of as a city,

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34. Il. VI.294-5.

35. Il. VI.309-311.

for in Book VII of the Iliad the Achaeans

> built a wall and a lofty rampart, a defence for their ships and for themselves. And therein they made gates close-fastening (**araryias**), that through them might be a way (**hodos**) for the driving of chariots. . . . and the gods . . . marvelled (**thēeunto**) at the great work of the bronze-coated Achaeans.[36]

Among the Achaeans, Athena had two special favorites. One of them was Achilles, whose dragging of Hector's naked corpse by the heels around the walls of Troy signalled the city's ultimate destruction. The other was Odysseus of the many wiles, boat-builder and expert navigator, whose long sea voyage in the second Homeric epic can be read as the making of another city[37], entirely different in nature from that of the monolithic, impregnable Trojan citadel.

For the new city-states François de Polignac describes, the cities that emerged in the VIIIth and VIIth centuries were, ultimately, the cities of Achaean navigators: both the cities of Greek Asia Minor and the colonies they founded throughout the Mediterranean Basin and around the Black Sea.

Theseus, who, according to legend, united the scattered Attic communities, and, as the mythical founder of the Athenian **polis**, transformed Athens from a Mycenaean citadel into a city-state, was also a sailor. As a youth he sailed to Crete, where, as already noted, he slew the Minotaur and found his way out of the Labyrinth. A long sea voyage

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36. Il. VII.436-444.

37. See also Mossé.

brought him back to Athens, and there, according to Plutarch, his ship was preserved as a sacred relic.

> The ship wherein Theseus and the youth of Athens returned had thirty oars, and was preserved by the Athenians down even to the time of Demetrius Phalereus[38], for they took away the old planks as they decayed, putting in new and stronger timber in their place, in so much that the ship became a standing example among the philosophers, for the logical question of things that grow; one side holding that the ship remained the same, and the other contending that it was not the same.[39]

It is perhaps this very ship to which Plato refers at the opening of the Phaedo[40]. As Plato tells it, was the yearly sacred voyage of Theseus' alleged ship to Delos and back, during which time "the city must be pure and no one may be publicly executed", that caused the lengthy delay between Socrates' trial and execution.

It was Theseus too who, according to Thucydides, Pausanius and Plutarch, instituted the Panathenaea, although other authorities date its inception, historically, to the sixth century or even later[41]. As we saw, in the early fifth century Athens attached herself to the sea. Only after this did Theseus, before then a minor hero in Attic

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38. Demetrius Phalereus was a rhetorician of the fourth century B.C.

39. Plu., Theseus, XXIII.1.

40. 58b: "This is the ship, as the Athenians say in which Theseus once went to Crete with the fourteen youths and maidens, and saved them and himself. Now the Athenians made a vow to Apollo, as the story goes, that if they were saved they would send a mission every year to Delos."

41. See Farnell, p. 295.

legend, began to figure largely in the Athenian self-consciousness. It was not until the fifth century, after Cimon "found" the bones of Theseus on the island of Skiros and brought them to Athens to be buried in the agora[42], that the cult of Theseus became a state cult.

A ship, even in current English usage, is a vessel (container, receptacle), and in Homer ships are almost invariably referred to as hollow ships. Moreover, we continue to speak of the "ship of state", and as Alberti was to note in the fifteenth century, "The Ancients . . . . compared the city to a ship on the high seas, constantly exposed to accidents and danger, through the negligence of its citizens and the envy of its neighbours"[43].

At one important point in its history Athens literally became a fleet of ships. When Themistocles evacuated Athens in 481 B.C. in the face of the Persian threat, the entire city put out to sea, taking with it its archaion agalma of Athena Polias. And when, according to Plutarch, a certain person said to Themistocles "that a man without a city had no business to advise men who still had cities of their own" Themistocles answered,

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42. Plut., Cimon 8 and Theseus 35, 36; Paus., III.iii.7. Cf. Malkin p. 201.

43. Leon Battista Alberti, On the Art of Building in Ten Books, translated by Joseph Rykwert, et al., (Cambridge, Mass, 1988), VII.i, p 189.

> It is true thou wretch, that we have left behind us our houses and our city walls, not deeming it meet for the sake of such lifeless things to be in sujection; but we still have a city, the greatest in Hellas, our two hundred triremes . . .[44]

The Athenian attachment to the sea did not sit well with Socrates, who, as we saw, objected to things that move around. In the Gorgias, he links the political decline of Athens directly to its emergence as a sea-power:

> You praise the men who feasted the citizens and satisfied their desires, and people say that they have made the city great not seeing that the swollen and ulcerated condition of the State is to be attributed to these elder statesmen[45], for they have filled the city full of harbours and docks and walls[46] and revenues and all that, and have left no room for justice and temperence.[47]

It would, of course, be simple-minded to read the Republic or the Laws as blueprints for an ideal political order, but the notion is undeniably implicit in the very existence of such writings that the political order could be thought without being made. Boats have no place in the **polis** of Plato's Laws, which is to be located eighty stades away from the sea, a distance that, as Robert Garland has pointed out, is exactly twice the distance of Athens from the Piraeus[48].

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44. Plu., Themistocles, XI.4.

45. Themistocles, Cimon and Pericles.

46. i.e. the Long Walls that linked Athens to the Piraeus.

47. Gorgias, 519a. Cf. Garland, p. 69.

48. Garland, p. 69.

Plato continues to be see dancing as primordial, however, for without a "perception of the various kinds of order and disorder in movement, which we term rhythm (**rhythmos**) and harmony" there is no understanding of community or political order. "The uneducated man", says Plato, "is without choir-training (**achoreutos**), and the educated man fully choir-trained (**kekchoreukota**)"[49] and since choir-training embraces both dancing and song, "the well-educated man must be able both to sing and dance well"[50].

In classical Athens, the memory of emerging order was re-enacted in the Panathenaea, and preserved in the dance. Although it was a living memory, rich with shared meaning, the age of discovery was over.

2. THE PERIPTERAL TEMPLE

The emergence of the Greek **polis** in the VIIIth and VIIth centuries as what François de Polignac calls a cité cultuelle was indissociable from the building of sanctuaries, and the salient, central feature of these sanctuaries was usually, although not always, the temple. At first a free-standing **megaron**[51], it very soon afterwards

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49. Laws, 654b.

50. Ibid.

51. In Homeric Greece, the **megaron** was a large hall, the chief room of the palace, which contained the sacred hearth. **Megara** did not become free-standing until the

became the prototypical "Greek" temple, with its **naos**, the dwelling-place of the cult statue, surrounded by a peristyle of evenly-spaced columns. When, in the VIIIth and VIIth centuries, the Greek temple became peripteral, it acquired **ptera**, wings.[52]

The Heraion at Samos

The temple of Hera at Samos located, by de Polignac's classification, at the limit of the territory of the **polis**, was among the first temples to become winged[53]. The earliest structure, built in the late ninth or early eighth century was the first **hecatompedon**, or one-hundred-foot-long temple, with mud brick walls, whose pitched roof, spanning a width of twenty feet, was supported by an axial row of interior pillars. It was not long after this, toward the middle of the eighth century, that the columns, wooden ones

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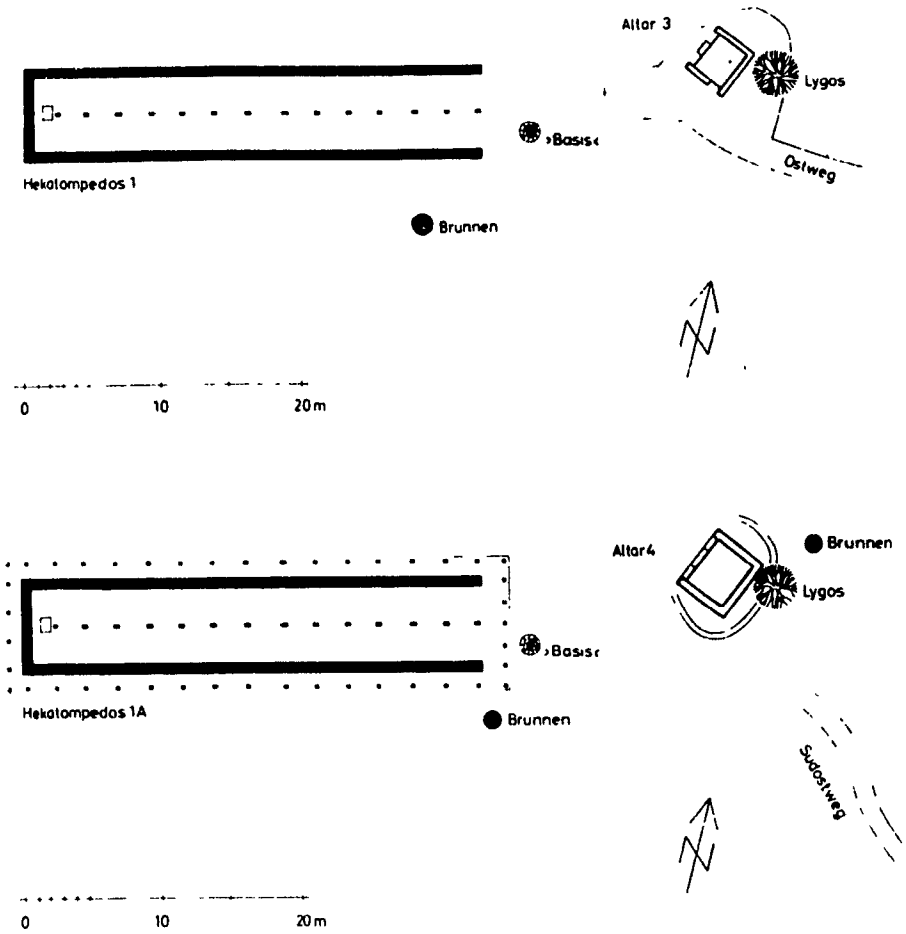
VIIIth century.

52. For documentation on the early Greek temples see Burkert 1985, p. 88 ff., Coldstream, p. 321 ff., Coulton, p. 30 ff., Hurwit, p. 74 ff., Lawrence, p. 115 ff., Martin 1980, p. 39 ff., and Scully. On the Heraion at Samos, see Walter.

53. Long thought to be the first peripteral temple, the Samian Heraion's claim has been superceded by that of a very early (tenth century), recently-excavated temple at Lefkandi, as well as by a later one at Eretria. Both Lefkandi and Eretria are in Euboea and the Euboean cities of Chalkis and Eretria were among the first colonisers. It is my suspicion that, with further research, the temple at Lefkandi may well prove to have become winged for reasons similar to those I argue for the case of the temple of Hera at Samos. A late ninth or early eighth-century temple has also been discovered at Thermon.



33. Plans of the two phases of the first temple of Hera (Hekatompedon I) on Samos, eighth century. From H Walter, *Das Heraion von Samos* (Munich, 1976), figs. 32 and 39, by kind permission of Dr Walter.

Figure 12

resting on circular stone bases, came outside: seventeen on each of the long sides, seven across the front, and six at the back, with the roof extended to cover them.

Various formal or functional reasons have been proposed for the setting of this momentous precedent. According to J.N. Coldstream, the peristyle was a "lavish and spectacular method of protecting the mud-brick walls against the elements"[54], and, in a similar vein, Jeffrey Hurwit claims that "the colonnade was meant above all to impress"[55]. J.J. Coulton says,

> The portico does not appear to have any structural value, and with a depth of only 1.30 m. it could not provide much useful shelter for visiting pilgrims; nor could it have had much religious significance to any eighth-century Greek. Perhaps it was inspired by the frequent mention of porticoes in epic descriptions of palaces . . . [56]

Vincent Scully's obsverations are more thoughtful. The peristyle, he says, was intended "to articulate, penetrate, and extend the exterior envelope of the building so that it should become a true mid-space element, at once bounded and boundless . . . setting up with its columns . . . a regular standard of measure whereby distant horizons could be grasped"[57]. These comments are fundamentally convincing, and are reflected, to a certain extent, by some of the

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54. Coldstream, p. 327.

55. Hurwit, p. 76.

56. Coulton, p. 31.

57. Scully, p. 50.

concerns expressed in this thesis. But, in the last analysis, I do not think the early Greeks were capable of thinking in such abstract, formal terms.

Other commentators, such as Walter Burkert, A.W. Lawrence, and Roland Martin, note the appearance of the peristyle, but do not venture any interpretation of its significance.

The Heraion at Samos was the home of the cult image of Hera, a **xoanon** that was kept chained up in order to reveal the fearful dynamism of its divine life. The first mud-brick Heraion, with its interior hearth-place, was a house writ large, and it is in the nature of houses with their hearths to be fixed[58], to be anchored to the soil. But everything in the Hellas of those early centuries was on the move; not only in the divine world of gods and deathless **physis**, but also in the human world (at the time, not yet wholly separate from the divine), with the new cities and their emerging political order, and the swift ships that set out on colonizing expeditions, carrying in their hollow hulls the hearth-fires of the **metropoleis** to far-flung destinations all over the known world[59].

And so, in the very image of the **polis** as it was being newly made, and of whose making it was such an essential

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58. See especially Jean-Pierre Vernant's discussion of Hermes and Hestia in Vernant 1985, p. 155 ff.

59. See especially chapter three, "The Sacred Fire and the Public Hearth", in Malkin.

feature, the shrine (**naos**) of the goddess became a ship (**naus**)[60] with "well-fitted oars (**euēre' eretma**) that are as wings unto ships"[61]. The cult statue was tied down because it was, essentially, mobile. The temple was given mobility because it had been, essentially, fixed.

It is worth recalling, in this context, that Icarus, whether shipwrecked or unwinged, was, in all the accounts, drowned near Samos. Also, Theodorus of Samos, architect, with his father Rhoikos, of the mid-sixth-century dipteral temple of Hera at Samos mentioned by Vitruvius[62], is credited with the invention of the level and of the lathe, as well as with the building of a labyrinth at Lemnos, and is seen as something of an historical counterpart to the mythical Daedalus[63]. Admittedly, Theodorus did not build the first winged temple at Samos: it predated him by at least two hundred years. But the curious correspondences between the mythical and historical figures further suggest that that **pteron** of the peripteral temple had much to do

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60. This kind of troping was, if Hersey's argument is accepted, a pervasive feature of the development of temple architecture. The identification of **naus** and **naos** has had a long history in Western architecture, for the central bay of a church continues to be called its nave, from the Latin navis, ship.

61. Od. XI.120.

62. VII.Pref.12.

63. See Frontisi-Ducroux, pp. 132-34.

with an early understanding of architecture as embodied flight, or navigation.

Furthermore, this is how Pausanias describes the tradition concerning the origins of the Temple of Apollo at Delphi:

> They say that the most ancient temple of Apollo was made of laurel. . . . This temple must have had the form of a hut. The Delphians say that the second temple was made by bees from bees-wax and feathers, and that is was sent to the Hyperboreans by Apollo. Another story is current, that the temple was set up by a Delphian, whose name was Pteras, and so the temple received its name from the builder.[64]

The builder of the second, wax-and-feather, temple at Delphi was Pteras, "winged man". Françoise Frontisi-Ducroux, who evokes the forgoing passage from Pausanius, also mentions a mutilated passage in Pindar which might arguably be construed as describing this second temple as having built by Daedalus.[65] It need hardly be added that, like almost all the great temples of the period, the sixth-century temple of Apollo at Delphi was peripteral.

Eurythmia

In Chapter 2, Book I of De Architectura, Vitruvius discusses the things of which architecture consists. These are **taxis** (order), **diathesis** (arrangement), decor,

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64. X.v.9-10. Pausanias also mentions a third temple made of bronze.

65. Frontisi-Ducroux, p. 167-68.

distrubution, "which in Greek is called **oeconomia**", and **eurythmia**. **Eurythmia**, says Vitruvius,

> implies a graceful semblance; the suitable display of details (membra) in their context. This is attained when the details of the work are of a height suitable to their breadth, of a breadth suitable to their length; in a word, when everything has a symmetrical correspondence. . . . As in the human body, from cubit, foot, palm, inch and other small parts comes the symmetric quality of **eurythmia**; so it is in the completed building.[66]

And, Vitrivius continues, the small part that guarantees **eurythmia** in a boat is given by the space between its rowlocks. Interestingly enough, in Book VI, his chapter on proportion in building once more makes mention of oars[67]. This is, perhaps, coincidental or, perhaps, not. With the complete disappearance of Vitruvius' Greek sources, which he no doubt misunderstood and most certainly Romanized, there is no way of knowing.

The most straightforward derivation of the word **eurythmia** is from **eu**, good, well, and **rhythmos**, which is not only any regularly recurring motion (rhythm), but also shape or pattern. According to J.J. Pollitt, **rhythmoi**, in the terms used by classical Greek sculptors, were "patterns isolated within continual movement", and "a single well-chosen **rhythmos** could, in fact, convey the whole nature of

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66. Vitr., I.ii.3-4.

67. Vitr., VI.ii.2.

movement"[68]. With the terms taken at this level, the embodiment of the right **rhythmos** in a work of architecture in a way that perfectly attunes or adjusts it to its surrounding element is very much what **eurythmia** seems to have been all about.

But I think the following speculation expands and enriches the sense of **eurythmia**, while at once, perhaps, throwing a little light on how the Greeks may have thought their first winged temples when they built them.

Euērēs, an adjective used in Homer exclusively as a fixed epithet for oar (**eretmon**), means well-fitted: **eu**, well, **arērōs**, fitted together. Now why does Homer always refer to oars as well-fitted[69]? The first reason is fairly obvious. Oars must be well-fitted, because, as already discussed, the whole construction of a boat is a question of proper fitting. Oars must also, as Vitruvius notes, be evenly spaced in a bank of oars, for the dimension of the spaces between the rowlocks determines the well-fittedness of the entire vessel. Oars, to be well-fitted, must also have the right shape -- slightly curved, and wider at the bottom than at the top -- because if they do not they will not "fit" the water, or the hand of the oarsman, properly, and be useless for rowing, which is the right rhythm of oars

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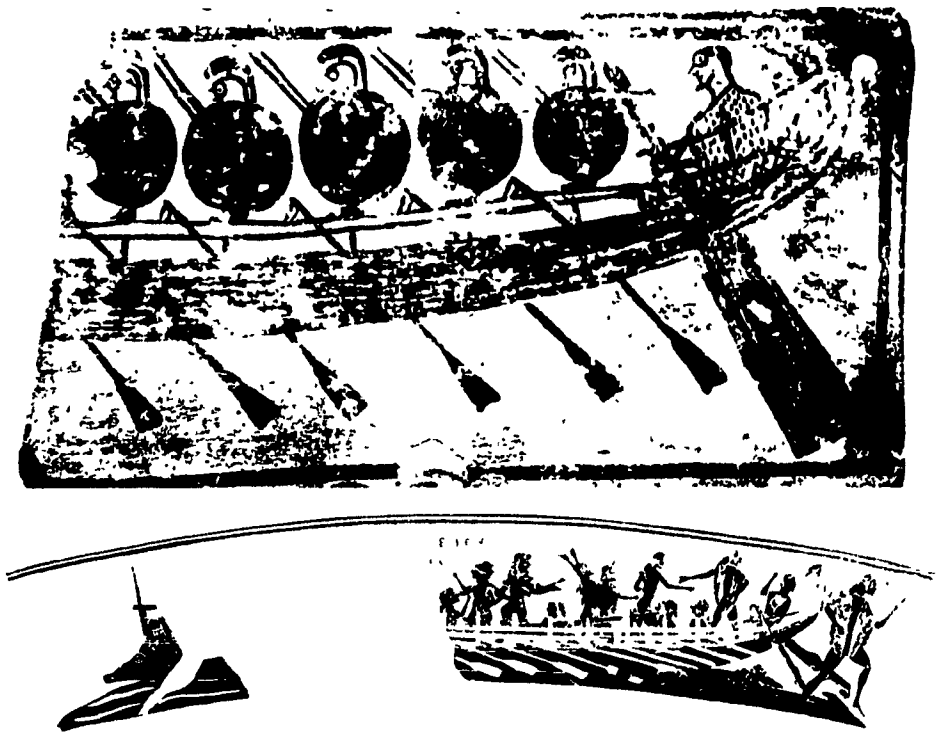
68. Pollitt, p. 54. Pollitt cites Myron's Discobolos as a particularly good example.

69. "Shapely" is a another fairly common, although less accurate, translation of **euērēs**.



WARSHIPS OF THE GEOMETRIC PERIOD

a After-part of a ship with marines on the side-deck, steersman and oars(wo)men to be encircled. From a Proto-Attic plaque found at Sunium. [illegible] National Museum, Athens.

b A thirty-oared boat (triaconter) with [illegible] From the Dipylon Area of Attic Black-Figure style found in Eretria. [illegible]

Figure 13

beating the water in unison: what makes a boat "fly". Well-fitted oars, **euēre' eretma**, are the perfect attunement of a boat to its surrounding element, and I would contend that in the very concrete thinking of the builders of the first peripteral temples, **eurythmia**, whatever else it was, was also **euēre' eretma**.

Athenian Refinements

In the fifth century B.C. Pericles fixed the ritual of the Panathenaea into the form discussed earlier, and so distilled, as I believe, the memory of emerging political order into a representation as beautiful, as dynamic, and as revealing as the Parthenon frieze that describes it. The same kind of distillation or refinement occurred in the Parthenon itself and, to a certain extent, in the other Periclean structures of the Athenian Acropolis.

The refinements of the Parthenon[70] are, of course, well-known, having been the suject of discussion for centuries: the curved stylobate and entablature, the slightly enlarged corner columns, the entasis of the columns, which by then had become considerably less pronounced (more "refined") than on earlier temples, and so on. In a word, everything that might be expected to be straight, perpendicular or strictly level is built as curved or slightly skewed. According to most traditional

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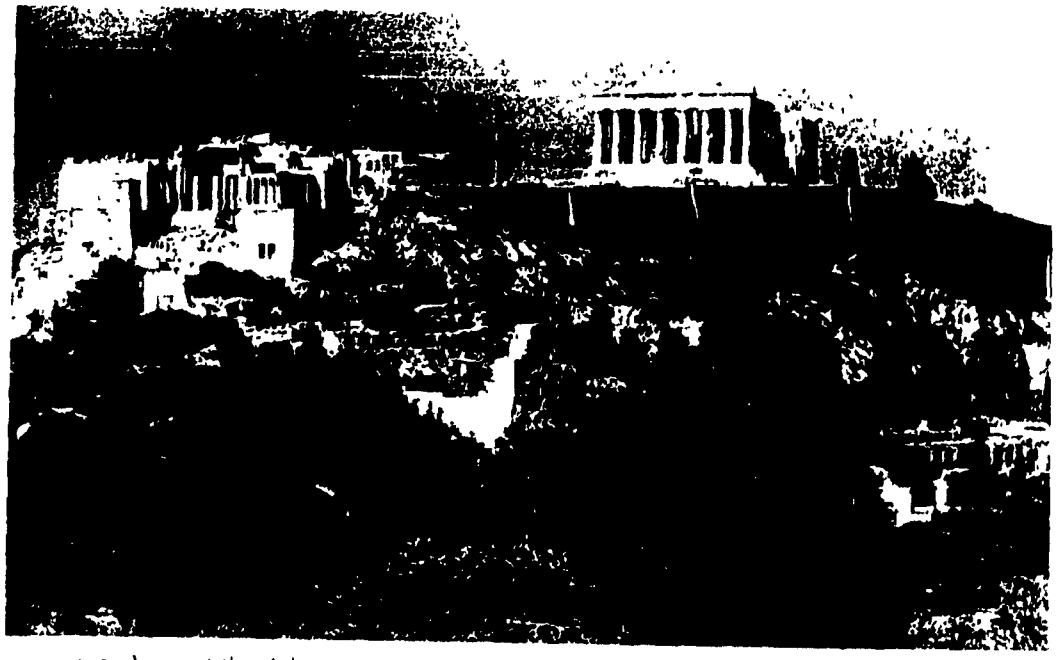
[70]. See, especially, Pollitt, p. 75 ff.



142 View of the Athenian Acropolis from the southwest. Photo Jeffrey M. Hurwit

Figure 14

interpretations, this was done so that the perpendicular, the straight and the horizontal might indeed appear to be so, for, as Vitruvius' speaks of such refinements[71], or optical corrections, the judgement of the eye being inaccurate, "what is real seems false"[72], and needs correcting in order to seem true.

Vitrivius' theory of optical corrections would appear to originate in optical theories, notably that of Euclid[73], which were formulated considerably later than the building of the Parthenon. Ictinus, too, may have had a theory of optics, but if he did, which is unfortunately impossible to determine, the Parthenon's refinements were not necessarily the application of such a theory. The theory could very well have been a legitimation of the refinements. I would suggest that the actual building of the refinements, rather than being the application of an optical theory, may well have had more to do with concentrating in a single building all that Hellas knew, but could not articulate, about Daedalus' discovery of order, and about revealing, through the fixity of a single well-chosen **rhythmos**, "the whole nature of movement", as Pollitt has put it.

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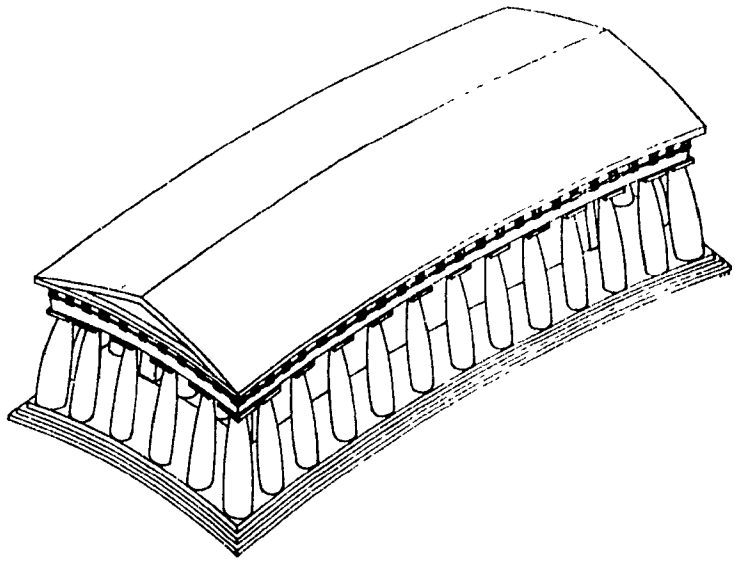
71. Vitruvius is not speaking explicitly of the Parthenon, but he does cite Ictinus, its architect, as one of his sources in the preface to Book VII.

72. Vitr., VI.ii.4.

73. Euclid's Optics was written around 300 B.C.



44 Doric temple showing exaggerated refinements

Figure 15

> We must therefore first determine the method of the symmetries from which these modifications (i.e."optical corrections") are to be correctly deduced. Then the unit of length for the site of the future work is to be set forth. When the magnitude of this is once determined, there will follow upon it the adjustment of the proportions to the decor (ad decorum) so that the appearance of eurythmy may be convincing to the observer (my italics).[74]

The Parthenon, Vincent Scully has remarked, "seems to be taking wing, . . . lifting and soaring despite its weight, the stones themselves rising. . . . The ptera now become true wings. . ."[75] Wings, I would say, in the sense that Hesiod used **ptera**[76], when he spoke of boats and navigation. If the Parthenon does indeed seem about to take wing (or set sail -- which of the two is not really important) it does so because of the so-called refinements. These, when exaggerated as shown, reveal all the tension -- a tension which is itself neither movement nor fixity -- of a bent bow about to release a winged arrow, or of the sail of a ship straining and swollen with the wind. Now when we view the Parthenon we do not, of course, see what the figure shows. The extreme subtlety of the refinements as built makes this impossible. But I strongly suspect that the intention of their building was to describe the tension not so much of

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74. Vitr.,VI.ii.5.

75. Scully, p. 184.

76. Works and Days, 628.

arrested movement, as the tension of movement that is not yet, just as Myron's Discobolos does.

Phidias' colossal statue of Athena, which was housed in the Parthenon, held in her right hand a statue of Winged Victory, according to Pausanias[77], about four cubits high. Shortly after Pericles' death in the plague of 429 B.C., there was completed on the spur of rock at the southwest extremity of the Acropolis, the exquisite Ionic temple of Athena Nike, or Nike Apteros, Wingless Victory[78]. The winglessness of Nike Apteros is of the same nature as the chains that bind a **xoanon**[79]: a revelation, for the Greeks, far more immediate than any winged representation, of a divine and animated presence. And indeed the small amphiprostyle temple, itself wingless and anchored to its rock, seems, at least to this observer, even more likely soar than the Parthenon.

Ship, City, Temple

As discussed earlier, Jean-Pierre Vernant, in his study The Origins of Greek Thought claims that the origin of the new image of the world embodied in Anaximander's cosmology

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77. I.xxiv.7.

78. See Harpocration s.v. **Nikē Athnēna**, cf. Donohue, p. 331: "Heliodorus the periegete, in the first book of On the Acropolis, discloses that the **xoanon** of Nike Athena is without wings, has a pomegranate in he right hand, a helmet in her left, and is honoured by the Athenians".

79. See Frontisi-Ducroux, p. 104.

is to be found in the emerging political order of archaic Greece. Crucial in this new image was the supremacy of the law of equilibrium, whereby "**monarchia** was replaced in nature, as in the city, by the rule of **isonomia**"[80]. This idea formed a common ground for the thought of all the pre-Socratics, as well as for the medical theory of the early fifth century B.C., health being an **isonomia** or balance of powers, and sickness the **monarchia** of one element over another.

Bound up with the new the importance of equilibrium was, according to Vernant, a new conception of space whereby power was located **en meson**, in the centre: physically, in the city, in the **hestia koine**, public hearth, and above all in the agora. For as Maeandrius, the mid-sixth century Samian tyrant Polycrates' successor is reported to have said, "I never approved . . . of Polycrates' reigning as a despot over men who were his equals . . . For myself, I lay down the **arche en meson**, and I proclaim **isonomia** for you"[81].

I do not wish to lay too much stress on the fact that this proclamation was made in Samos. Rather, what is important is that, when the columns of the Greek temple came outside, the power, the **arche** that was **en meson** in the **naos**

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80. Vernant 1982, p. 122. **Isonomia**, literally, is equal law (**nomos**), or equality before the law.

81. Hdt., III.142.

with its cult statue and hearth-place, was made to be seen to be located in the centre. It has, admittedly, not been common to suggest a connection between peripteral columns and oars[82], but every architectural theoretician from Vitruvius until the eighteenth century has stressed the connection between columns and people: people, I would claim, who were assembled to stand in **isonomia** around the power located **en meson**, when the columns came to stand, equally spaced, around the **naos** of the first peripteral temples.

Craft brought people out of the isolation and barbarism personified by the cave-dwelling Cyclopes who had no assemblies or knowledge of boat-building. Craft and community were, for the early Greeks, indissociable, and it was the peripteral temple, whose canon of construction became, over the years, almost invariable, that enshrined the memory of this conviction. The sacrifices which had affirmed community before the time of temples and had taken place around altars whose location had become fixed by tradition were now, for the most part, linked directly with the presence of a temple building that was, with its **pteron**, itself a reaffirmation of the meaning of the sacrifice.

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82. As far as I know, I am the only one to have done so. Perhaps Vitruvius' Greek sources talked about it, but if they did Vitrivius, must have missed the point, for although he talks about clocks and machines at length, he has almost nothing to say about naval architecture, except to explain the mechanics of steering (X.iii.5). The Romans were much less of a sea-faring nation than the Greeks.

In the building of the temple was concentrated both the making and the discovery of **kosmos**, which, at least from Hesiod onwards, was explicitly understood as the province of the divine. Thus, the temple became not only the location for the embodiment of the indissociability of craft and community, but also replaced the caves and sacred groves of earlier divine epiphanies, and became the place where the divine presence of the god or goddess was revealed.

There is nothing in this that is at odds with the notion of the peripteral temple as a ship. Oars are set in motion by oarsmen equally spaced, like their oars, around the ship's periphery, and it is only when the oarsmen ply these oars <u>together</u>, keeping time to a rhythm that is not of any single man's making that the boat can properly take flight.

As the Greek general Nicias said to his soldiers on the beach at Syracuse, "it is men that make a **polis**, not walls or ships devoid of men"[83].

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[83]. Thuc., VII.lxxvii.7. Cf. Rykwert p. 23, and Hurwit p. 73. Similar sentiments are expressed, among others, by Alcaeus (frg. 22); Sophocles (<u>Oedipus Tyrannus</u>, 56); Aechylus (<u>Persians</u>, 349), and Plutarch (<u>Lycurgus</u>, 19); cf. note 1, p. 158, vol. IV, of the Loeb Thucydides.

Figure 16

V CONCLUSION

> . . . for the same reason we consider that the master craftsmen (**architektonas**) in every profession are more estimable and know more and are wiser than the artisans (**cheirotechnōn**--literally, hand-workers) because they know the reasons of the things that are done. . .[1]

> . . . the several arts are composed of two things -- craftmanship and the theory of it (ex opere et eius rationatione). Of these the one, craftmanship is proper to those who are trained in the several arts, namely the execution of the work; the other, namely theory, is shared with educated persons. . . . throughout all the sciences many things, or indeed all, are in common so far as theory is concerned. But the taking up of work which is finely executed by hand, or technical methods, belongs to those who have been specially trained in a single trade.[2]

The consensus among scholars is that Anaximander's treatise, claimed to be at once the West's first work in prose and its first work of philosophy, appeared around the beginning of the second half of the sixth century B.C. But, if Vitruvius is to be believed, at the same time, Rhoikos and Theodorus published a work, also presumably (although not necessarily) in prose, on "the Ionic temple of Juno which is at Samos"[3]: the first architectural treatise.

Anaximander's work has become, in the history of philosophy, the first articulation of western thought, with his cosmic model, the built work, all but forgotten and

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1. Arist., Metaph., 981b2.

2. Vitr., I.i.15-16.

3. Vitr., VII.Pref.12. This is the third, dipteral, Samian Heraion spoken of earlier. See also Coulton, p. 24.

treated by historians as, at best, somewhat incidental. The built work of Rhoikos and Theodorus, survives, like the written work of Anaximander, in fragments: a single, precarious, stack of column drums, surrounded by a litter of bases and broken stones. Their written work, like Anaximander's built one, has all but been forgotten, and would, no doubt, have been so entirely had it not been for Vitruvius' mention of it.

Anaximander's work, and with it the dawn of Western thought, cannot be understood apart from the craft which was, for the early Greeks, the appearing of **kosmos**. Anaximander's work, in other words, cannot be understood apart from his model, and this is why I have tried, even in the face of the very scanty evidence, to imagine what that model may have been like. The attempt to envision the model has led to the conclusion that what is known of Anaximander's cosmology, together with the thought expressed in the B1 fragment, can be very clearly understood as a theory of the work, just as Vitruvius understood the treatise of Rhoikos and Theodorus to be the theory of the Temple of Hera at Samos.

The peripteral temple and the emerging polis of whose making the temple was both an essential component and an emblem, did not appear <u>with</u> the birth of theory. Their appearing took place over the two-hundred-year period that <u>preceded</u> it. It is crucial to understand the significance

of this chronology, the relevance of this "order of time". **Theōria** had, originally, to do both with seeing and with the revelation of the divine, which converged, in Homeric literature, in the wondering admiration, the **thauma**, with which Homeric eyes beheld the well-made things that were **daidala**, things were animated with a divine life, and so revealed the hidden presence of a goddess or a god. Before there could be theory there had to be the well-made thing.

And this is where the diffculty arises, a difficulty that lies at the very root of what Heidegger has lamented as the objectivization of Being in Western metaphysics. **Kosmos** is discovered, as Daedalus discovered it, through a **technē** that is a letting appear. Homeric **epistēmē**, like Homeric **sophia**[4], was skill: knowledge or wisdom that could not be separated from the experience of the knower. Theory, on the other hand, even in the rather simplistic formulation adopted here, demands that the well-made thing already be made, that it have already appeared.

The experiential dimension of **sophia** as skill continued to be appreciated in the classical period, for Socrates is quoted as speaking of the **sophia** of Daedalus, both in the passage from the Euthyphro cited at the opening of this

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4. See, for example, Il. XV.410 ff: "But as the carpenter's line (**stathmē**) makes straight a ship's timber in the hands of cunning workman, well skilled (**eu sophiēs**) in all manner of craft by the **eidos** (sight, knowledge as seeing) of Athena . . .".

thesis, as well as in one from Xenophon's Memorabilia[5]. But, by the classical period, and with Plato, **epistēmē** no longer had anything to do with skill. **Epistēme** had become, exclusively, knowledge as seeing, **eidenai**, with the **eidos**, the thing seen, fixed and eternal, as its ultimate object and source. And, although the experiential dimension of wisdom continued to linger in the classical understanding of it, no one, according to Plato, could claim to be truly **sophos**, only to be **philo-sophos**, a lover of wisdom. True wisdom was exclusively the province of the divine, and beyond the reach of human experience. The earlier understanding that **sophia**-as-skill, the complement of a **technē** that allowed **kosmos** appear[6], was itself the very revelation of the divine in experience, was lost.

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5. Mem. IV.ii.33,. ". . . have you not heard how Daedalus was seized by Minos because of his wisdom (**dia tēn sophian**), and was forced to be his slave, and was robbed of his country and his liberty, and essaying to escape with his son, lost the boy and could not save himself, but was carried off to the barbarians and again lived as a slave there?" Socrates' point is that **sophia** can have unpleasant consequences, as indeed it did for himself.

6. That **sophia** and **technē** were complementary is made very clear in the Homeric Hymn to Hermes. Hermes gives Apollo the lyre, which he has invented, and says,

> Sing well with this clear-voiced companion in your hands; for you are skilled (**epistamenos**) in good well-ordered utterance (**kala kai eu kata kosmon agoreuin**). From now on bring it confidently to the rich feast and lovely dance. . . . Whoso with **techne** and **sophia** enquires of it cunningly, him it teaches through its sound all manner of things that delight the mind . . . (478 ff.).

A few lines later (511), Hermes "found out another **technē** of **sophia** and made himself pipes whose sound is heard afar".

Epistēmē is also, according to Plato, true opinion (**doxa**) bound by the chains of recollection (**anamesis**). For Plato, this recollection is the memory of the world of Ideas (**eidē**) known before birth.

Which birth? Whose? Was it the birth of bright-eyed Athena who sprang, in that "outrageous myth . . . a diagram of motherless birth"[7], fully armed from the head of Zeus, never having known the darkness of the womb? The men of classical Greece, especially the men of Athens, for whom Aeschylus spoke when he said, "The mother is no parent of her child"[8], knew nothing about birth.

Plato's theory of recollection assumed that knowledge of the ideal was perfect and complete before birth. If this theory is considered in the context of the rather offensive classical Greek view of the facts of life, and if it is remembered that the womb is symbolized by the cave of the Republic as the location of brute ignorance, then Plato, it

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7. Harrison 1912, p. 500.

8. Aeschylus, Eumenides, l. 562 ff; cf. Harrison 1912 p. 501:

This too I tell you, mark how plain my speech
The mother is no parent of her child
Only the nurse of the young seed within her.
The male is the parent, she as outside friend
Cherishes the plant, if fate allows its bloom.
Proof will I bring of this my argument.
A Father needs no mother's help. She (i.e. Athena) stands
Child of Olympian Zeus, to be my witness,
Reared never in the darkness of the womb,
Yet fairer plant than any heaven begot.

must be concluded, must have assumed the ideal state of perfect knowledge to have existed before conception, in the pristine state of uncontaminated, no doubt luminous, male seed.

There is, however, nothing objectionable in the theory of recollection itself or in the notion of knowledge as the recall in life of a world known before birth, if this world is rightly understood as the world of experience known before there is any objective seeing. The seeing person cannot, of course, forget that he or she sees, and any recollection of the pre-seeing state is necessarily made in terms of seeing, for there is no return to the womb.

The memory of a pre-seeing, pre-theoretical world of letting appear, the memory of a world where **epistēme** and **sophia** both were skill, was lost, along with the memory of Being, in Western metaphysics. But, if my speculations regarding Anaximander's work have any validity, metaphysics itself emerged from that very kind of **epistēme**, and for the brief pre-Socratic period, the two kinds of **epistēme**, the skillful kind and the the seeing kind, co-existed in a tenuous balance in Western thought. By the fifth century, perhaps as a result of the Persian conquest of Ionia and of the hegemony of Athens, the balance tipped irrevocably in favour of seeing.

However, if the memory of the pre-seeing world was lost in Western metaphysics, it was, I would claim, preserved in

Western architecture, and in its theory, which shared the identity of metaphysics for that brief time in the sixth century B.C. If Vitruvius and his successors are read with patience, the traces of this concurrence can still be found. It becomes clear, for example, why the legitimacy of the Doric order was claimed to have rested on its resemblance to carpentry. The importance was not to preserve the memory of wood construction as such, but, with the building of each Doric temple, to bind with the chains of recollection into an **episteme** as seeing, the **doxa**, the right opinion,, that cutting, assembly and the perfect adjustment of parts were essential in the realm of **epistēme** as skill in allowing **kosmos** to appear. When read in the light of the early Greek understanding of craft and **epiphaneia**, Alberti's insistence that the temple be built in a "proud place", and be "perfectly visible from every direction"[9] is a similar recollection of **kosmos** allowed to appear through **technē**.

This **kosmos** was, as we have seen, also political, with the making of the **polis** and its emblem, the temple, the very reflection of the building and navigation of a boat, the weaving of a cloth, or the tracing of the figure of a dance. Craft and community were understood as indissoluble. When, in the classical period, **epistēmē** became seeing, not only did the craftsman lose his prestige and become divorced from

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9. Leon Battista Alberti, On the Art of Building in Ten Books, translated by Joseph Rykwert, et al., (Cambridge Mass., 1988), VII.3, p. 195.

the political sphere, but so did the thinker, the **philosophos**[10].

It is fairly common today among certain enlightened architectural historians to claim that architecture, until the eighteenth century, was built metaphysics. My claim is that not only metaphysics, but all of Western thought, was first grounded in architecture, and that, until the eighteenth century, the legitimacy of architecture rested on the preservation of that memory.

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[10]. It should be recalled that Socrates met his death, in part at least, because of his lack of political engagement.

BIBLIOGRAPHY

Arendt — Arendt, Hannah, The Human Condition, (Chicago, 1958).

Ashmole — Ashmole, Bernard, Architect and Sculptor in Classical Greece, (London, 1972).

Berve — Berve, H., H. Gruben, and M. Hirmer, Greek Temples, Theatres and Shrines, (New York, undated).

Bill — Bill, Clarence P., "Notes on the Greek Theōros and Theōria", Transactions and Proceedings of the American Philological Association, XXXII, 1901, pp. 196-204.

Bunbury — Bunbury, E.H., A History of Ancient Geography, second edition, 2 vols., (New York, 1959).

Burford — Burford, A., Craftsmen in Greek and Roman Society, (London, 1972)

Burkert 1972 — Burkert, Walter, Homo Necans: The Anthropology of Ancient Greek Sacrifical Ritual and Myth, translated from the German by Peter Bing, (Berkeley, 1972).

Burkert 1985 — Burkert, Walter, Greek Religion, translated from the German by John Raffan, (Cambridge, Mass., 1985).

Burnet — Burnet, John, Early Greek Philosophy, fourth edition, (London, 1930).

Burns — Burns, A., "Hippodamus and the Planned City", Historia 25, (1976), pp. 414-28.

CAH — Bury, J.B., S.A. Cook and F.E. Adcock eds., The Cambridge Ancient History, (Cambridge, 1926).

Cherniss — Cherniss, Harold, Aristotle's Criticism of Presocratic Philosophy, (Baltimore, 1935).

Cornford 1912 — Cornford, F.M., From Religion to Philosophy, Harper Torchbooks edition, (New York, 1957). First published 1912.

Cornford 1926 — Cornford, F.M., "Mystery Religions and Pre-Socratic Philosophy", in CAH IV, ch. 15.

Coldstream — Coldstream, J.N., Geometric Greece, (London, 1977).

Coulton — Coulton, J.J., Ancient Greek Architects at Work, (Ithaca, N.Y., 1977)

Diels — Diels, H. Die Fragmente der Vorsokratiker, 6th edition, with additions and index by W. Kranz, (Berlin, 1952).

Detienne and Vernant — Detienne, Marcel, and Jean-Pierre Vernant, The Cuisine of Sacrifice Among the Greeks, with essays by Jean-Louis Durand, Stella Georgoudi, François Hartog and Jesper Svenbro, translated from the French by Paula Wissing, (Chicago, 1989).

Dodds — Dodds, E.R., The Greeks and the Irrational, (Berkeley, 1951).

Donohue — Donohue, A.A., Xoana and the Origins of Greek Sculpture, (Atlanta, 1988).

Dunbar — Dunbar, Henry, A Complete Concordance to the Odyssey of Homer, new edition revised and enlarged by Benedetto Marzullo, (Hildesheim, 1962).

Durand — Durand, Jean-Louis, Sacrifice et labour en grèce ancienne, (Paris-Rome, 1986).

Farnell — Farnell, L.R., The Cults of the Greek States, (Oxford, 1896).

Freeman — Freeman, Cathleen, Companion to the Presocratic Philsophers, (Oxford, 1946).

Frankfort — Frankfort, H., Before Philosophy, (Harmondsworth, 1951).

Frontisi-Ducroux — Frontisi-Ducroux, Francoise, Dedale: mythologie de l'artisan an Grece ancienne, (Paris, 1975).

Furley and Allen — Furley, D.J. and Allen, R.F. (eds.), Studies in Presocratic Philosophy, 2 vols., (London, 1970, 1975).

Fustel	Fustel de Coulanges, Numa Denis, The Ancient City, (New York, 1955).
Gernet	Gernet, Louis, Anthropologie de la Grèce antique, (Paris, 1968).
Glotz	Glotz, Gustave, The Greek City and its Intstitutions, translated from the French by N. Mallinson, (London, 1929).
Garland	Garland, Robert, The Piraeus from the Fifth to the First Century B.C., (London, 1987).
Graves	Graves, Robert, The Greek Myths, 2 vols., revised edition, (Harmondsworth, Middlesex, 1960).
Hammond	Hammond, N.G.L., A History of Greece to 322 B.C., third edition, (Oxford, 1986).
Harrison 1912	Harrison, J.E., Themis: A Study of the Social Origins of Greek Religion, second edition, (London, 1912).
Harrison 1922	Harrison, J.E., Prolegomena to the Study of Greek Religion, third edition, (Cambridge, 1922).
Heidegger 1950	Heidegger, Martin, An Introduction to Metaphysics, (New Haven, 1950).
Heidegger 1975	Heidegger, Martin, Poetry, Language, Thought, Harper Colophon edition, (New York, 1975).
Heidegger 1984	Heidegger, Martin, Early Greek Thinking: The Dawn of Western Philosophy, (New York, 1984).
Heidel 1921	Heidel, W.A., "Anaximander's Book, the Earliest Known Geographical Treatise", Proceedings of the American Academy of Arts and Sciences, Vol 56, No. 7., April 1921.
Heidel 1937	Heidel, W.A., The Frame of the Ancient Greek Maps, (New York, 1937).
Herington	Herington, C.J., Athena Parthenos and Athena Polias, (Manchester, 1955).
Hersey	Hersey, George, The Lost Meaning of Classical Architecture, (Cambridge, Mass., 1988).

Holscher — Holscher, U., "Anaximander and the Beginnings of Greek Philosophy", in Furley and Allen, 1, pp. 281-322. (English translation of an article in Anfangliches Fragen first published in Hermes 81 (1953), pp. 255-77 and 358-417).

Hurwit — Hurwit, Jeffrey M., The Art and Culture of Early Greece 1100-480 B.C., (Ithaca and London, 1985).

Jaeger — Jaeger, Werner, The Theology of the Early Greek Philosophers, translated from the German for the Gifford Lectures of 1936 by Edward S. Robinson, (Oxford, 1947).

Kahn — Kahn, Charles A., Anaximander and the Origins of Greek Cosmology, (New York, 1964).

Kerényi — Kerényi, Karl, Athene: Virgin and Mother in Greek Religion, translated from the German by Murray Stein, (Zurich, 1978).

Kirk — Kirk, G.S., The Nature of the Greek Myths, (Harmondsworth, 1974).

Kirk and Raven — Kirk, G.S., J.E. Raven, and M. Schofield, The Presocratic Philosophers, second edition, (Cambridge, 1983).

Lawrence — Lawrence, A.W., Greek Architecture, fourth edition, (Harmondsworth, Middlesex, 1983).

Lloyd-Jones — Lloyd-Jones, Hugh, The Justice of Zeus, (Berkeley, 1971).

Lobkowicz — Lobkowicz, Nicholas, Theory and Practice, (Notre Dame, Indiana, 1967).

Malkin — Malkin, Irad, Religion and Colonization in Ancient Greece, (Leiden, 1987).

Martin 1974 — Martin, R., L'urbanisme en Grece antique, (Paris 1974).

Martin 1988 — Martin, R., Greek Architecture, (New York, 1988).

Mossé — Mossé, Claude, "Ithaque ou la naissance de la cité", Studi di Archeologia e Storia Antica, 2, 1980, pp. 7 -19.

Mugler — Mugler, C., "Sur l'histoire de quelques définitions de la géometrie grecque: la surface", L'antiquité classique, (1958), pp. 76-91.

Onians — Onians, Richard Broxton, The Origins of European Thought about the Body, the Mind, the Soul, the World, Time and Fate, (Cambridge 1951).

Pérez-Gómez — Pérez-Gómez, Alberto, "The Myth of Daedalus", AA Files, 10, Autumn 1985, pp. 49 -52.

Pollitt — Pollitt, J.J., Art and Experience in Classical Greece, (Cambridge, 1972).

de Polignac — de Polignac, François, La naissance de la cité grecque, (Paris 1984).

Prendergast — Prendergast, G.L., A Complete Concordance to the Iliad of Homer, new edition revised and enlarged by Benedetto Marzullo, (Hildesheim, 1962).

Rausch — Rausch, Hannelore, Theōria, (Munich, 1982).

Robertson — Robertson, D.S., A Handbook of Greek and Roman Architecture, 2nd edition, (Cambridge, 1943).

Rouse — Rouse, William Henry Denham, Greek Votive Offerings: An Essay in the History of Greek Religion, (Cambridge, 1902).

Rykwert — Rykwert, Joseph, The Idea of a Town, second edition, (Cambridge, Mass., 1988).

Schachermeyr — Schachermeyr, M.F., "The Genesis of the Greek Polis", Diogenes, No. 4, (1953), pp. 17-30.

Scully — Scully, Vincent, The Earth the Temple and the Gods, revised edition, (New Haven, 1979).

Seligman — Seligman, Paul, The Apeiron of Anaximander, (New York, 1962).

Snell — Snell, Bruno, The Discovery of the Mind in Greek Philosophy and Literature, Dover edition, (New York, 1982).

Snodgrass 1967	Snodgrass, A., Arms and Armour of the Greeks, (London, 1967).
Snodgrass 1977	Snodgrass, A., Archaeology and the Rise of the Greek City State, (Cambridge, 1977).
Snodgrass 1981	Snodgrass A , Archaic Greece, The Age of Experiment, (Cambridge, 1981).
Steiner	Steiner, George, Heidegger, Fontana Modern Masters edition, (London, 1978).
G. Thomson	Thomson, G., "From Religon to Philosophy", Journal of Hellenic Studies, 1953, lxxiii, pp. 77-84.
J. O. Thomson	Thomson, J.O., History of Ancient Geography, (New York, 1965).
Vallet	Vallet, G., "La cite et son territoire dans les colonies grecques d'occident", Atti del 7e Convegno di Studi sulla Magna Grecia, (Naples 1968), pp. 67-142.
Vernant 1974	Vernant, Jean-Pierre, Mythe et societe en Grèce ancienne, (Paris, 1974).
Vernant 1982	Vernant, Jean-Pierre, The Origins of Greek Thought, (Ithaca, 1982).
Vernant 1985	Vernant, Jean-Pierre, Mythe et pensee chez les Grecs, (Paris, 1985).
Vlastos 1947	Vlastos, G., "Equality and Justice in Early Greek Cosmologies", Classical Philology 42 (1947), pp. 146-78 (reprinted in Furley and Allen).
Vlastos 1952	Vlastos G., "Theology and Philosophy in Early Greek Thought, Philosophical Quarterly 2, (1952), pp. 97-123. (Reprinted in Furley and Allen).
Vlastos 1953	Vlastos, G., "Isonomia", American Journal of Philology 74, (1953), pp. 337-66.
Vlastos 1955	Vlastos, G., "Review of F.M. Cornford: Principium Sapientiae", Gnomon 27, (1955), pp. 1-7. (reprinted in Furley and Allen).

Voegelin 1968 — Voegelin, Eric, Science, Politics and Gnosticism, Gateway edition, (Chicago, 1968).

Voegelin OH — Voegelin, Eric, Order and History, five vols., (Baton Rouge, 1956-87).

Walter — Walter, H., Das Heraion von Samos, (Munich, 1976).

Warmington — Warmington, E.H., Greek Geography, (London, 1934).

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