

A search for correspondences in tectonic syntax of Hellenic monumentalised art and architecture before the Classical period

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Abstract

In offering new understanding of the tectonic syntax included in Hellenic art and architecture, the article demonstrates the transference of abstract ideas from one art form to another, the effects of the acceptance of tradition in design, as well as the evolution of an *esprit de système* over time. Rhys Carpenter's earlier tectonic understanding of the Hellenic Orders is expanded through an analysis of the tectonic syntax in examples of late Mycenaean to Archaic art and the Archaic Ionic Order. A synthetic understanding of the interplay between style and tectonic syntax in Mycenaean and Hellenic pre-Classical monumental art and Archaic Hellenic architecture is constructed through integration of the results of the analysis with Thomas Noble Howe's analysis of the tectonic syntax of the Doric Order.

Rhys Carpenter (1962: 258), in his work *Greek Art. A study of the formal evolution of style.*, came to the conclusion that Hellenic architecture was a representational art where existing visual elements were *stylistically* [author's emphasis] applied within a fully organised, tectonically coherent scheme. Whilst this idea of a coherent tectonic scheme was not a new conception, it departed from previous works in that Carpenter (1962: 222) rejected the idea that the Hellenic architectural Orders were exact copies of timber schemes, such being pure expression of structural logic. Unfortunately the scope of his work did not allow for a pursuit of his theme through corroborative archaeological evidence, which allowed for the idea of the Hellenic Orders being xyloolith skeuomorphs to remain a view which oppressed new architectural explanations of any tectonic rationale imbued in the Orders. Up to the present, there is only one convincing thesis which tries to give a probable alternative to the timber skeuomorph school of thought.

Whilst one can level certain criticisms at Thomas Noble Howe's (1985) methodology and certain detail of his conclusions, his alternative hypothesis of the Doric Order having been an invention in stone achieved in a single generation of intense architectural endeavour, has not yet been overturned in a systematic manner. His approach to dealing with a new analysis of the abstract tectonic nature of the Doric Order in its founding phase, one that does not depart from, or rely in any way on, a referral to the tectonics of timber work, fills in the beginnings made by Carpenter and stands as a major contribution in the field, regardless of the detailed outcome of his hypothesis.

In coming to a conclusion regarding what he terms to be, the "abstract tectonic rules" included in the Doric Order, Howe analysed various monumentalised works in the Hellenic artistic sphere which preceded the formation of the Doric Order (Note: The author would like to propose that the term "tectonic syntax" is used instead, to place the focus on the perceived visual iconographic aspect rather than the hidden, technological intricacies involved in the Hellenic architectural Orders. In this article there is also no further exploration of the iconological content of the works). Howe applied his conclusion to the Doric Order and found it to provide a clear and coherent framework which illuminates the specific tectonic manner in which both Geometric and Archaic artists and architects perceived and concretized their world. Howe (1985: 115) sees linkage between the tectonic nature of Attic Geometric ware, the Archaic *kouros* sculpture and the Doric Order on the one hand, and specifics of Hellenic analytical thought on the other. He (1985: 117) concludes that the re-occurrence of

similar tectonic rules in works from various phases in the Hellenic era, indicates the existence of a specific Hellenic disposition towards visioning a physical reality. This vision or understanding of the *physis* seems to have been a unique composition, consisting of both organically and tectonically orientated analytical thinking, which expressed itself, amongst others, in various art forms.

In order to explore Howe's conclusion this paper tries to address three questions arising from his hypothesis: The first is whether the abstract tectonic rules underlying the earliest works that he analysed, namely Attic Geometric earthenware, were original conceptions or whether they relied on achievements within a foregoing Hellenic cultural era, the so-called "Dark Ages"? The second is whether this tectonic perception, supposedly prevalent in the Hellenic cultural sphere, was subscribed to in the Ionic cultural sphere before and during the formation of the Ionic Order and was transferred to the Ionic Order? Thirdly, the question remains as to which outstanding aspects are required to ascertain who's perception of the tectonic coherence of the Orders would be the more probable, Carpenter and Howe's, or that of the timber-origin theorists?

In addressing the first two questions the author has identified certain monumentalised artefacts from the Geometric, Orientalising and Early Archaic periods that are deemed to be relevant to the transference of a tectonic vision over time, to be analysed in the manner proposed by Howe (1985: 80-93; 116-7). The earthenware, glyptic and toreutic works are chosen in terms of their iconic nature, as well as due to the fact that they show relevant composite decorative schemes or forms. In the manner of Howe, the morphology of these works is defined in terms of form elements (pattern elements and connection elements), properties of form elements (nature, proportion, admissibility), and the syntax of the form elements (relative position, connection and ordering). In order to present the total analysis of artefacts to the reader, Howe's analysis of Attic Geometric earthenware decoration, Early Archaic *kouros* and the Doric Order was adopted for this article in

the form of an interpretative synopsis (See Tables 1A-C). In order to further look into the possibility and specific nature of the continuation of artistic predilections by means of the other spheres of art present in the founding system of the Ionic Order, and those which were not covered by Howe's analysis, the author's analysis involves monumental bronze kettle stands from the Late Mycenaean period, together with examples from the Hellenic Geometric Period which are known to have been manufactured in the founding area of the Ionic Order (i.e. the Cyclades) and which could indicate transference of a design orientation; Orientalising decorative schemes on earthenware specifically found in the Cycladic area; the Archaic Ionic Order, as conceived in stone in the Cyclades and evolved in eastern Ionia.

The analysis is presented in a way that represents Howe's interpretation, followed by an additional interpretation by the authors, with artefacts presented in chronological progression.

1. Part 1 — Howe's analysis of tectonic syntax

1.1 Hellenic art — Attic MG II earthenware

The analysis of the tectonic syntax regulating the building block patterns on Late Eighth-century BC Geometric (classified as MG II) earthenware (See Table 1.A and Figure 1a) shows that the syntactical ordering of decoration according to abstract structural principles, rather than only subject to the material composition of the pottery, is to be understood as an intellectual ordering that serves as visual fiction. This fiction reflects — as stylistic overlay — the potter's or decorator's conceptualisation of the artwork as abstract tectonic entity as well as physical entity.

1.2 Hellenic art — the Archaic *kouros*

Howe's (1985: 79) analysis of the tectonic syntax underlying Early Archaic *kouros* (See Table 1.B and Figure 1b), before any monumental Hellenic architecture in the form of stone Orders, shows that insight into the human form

TABLE 1	1.A Eighth-century BC Hellenic MG II earthenware (Howe 1985: 80-93)		1.B Early Archaic <i>kouroi</i> (Howe, 1985: 116-7)
<p>Morphology nature</p> <p>proportion</p> <p>admissibility</p>	<p>* Each visual element on the surface is either a two-dimensional, compact block type element (pattern element) or a one-dimensional element (connecting element).</p> <p>* Hellenic art is essentially mass-positive. In MG II decoration the pattern elements that suggest mass dominate, rather than the open spaces (voids). The outer boundaries of the pattern elements applied to the surface of a volumetric element further suggests the form of the volumetric element.</p> <p>* The outer boundaries of the pattern elements are convex rather than concave. Convexity is the formal signifier of a coherent element with a specific character. Convexity also expresses the internal ability of the pattern element to be able to resist a force (This aspect indicates an organic principle that occurs within a tectonic relationship).</p> <p>* The proportions of the pattern elements, as well as the positive nature and coherence of the forms create the illusion of mass if placed on the surface of an object.</p> <p>* Pure geometric patterns are used, but only those of convex character. Where parts of the human body is represented, those elements are convex rather than pure geometric forms, and this composition of convex elements indicate an analytical vision where every part of the body is seen as an individual element each with its own character, and that the concave connections between the elements indicate the separation between elements.</p> <p>* Individual pattern elements are not subdivided or superimposed. The individual character of pattern elements are hereby acknowledged rather than compromised.</p> <p>* Pattern elements that do not conform to the above mention criteria do not form part of the series of allowable elements of MG II decoration.</p>	<p>Morphology nature</p> <p>proportion</p> <p>admissibility</p>	<p>* Elements are formed as individual components.</p> <p>* The elements are simple and very abstract, and speak of physical and mental energy.</p> <p>* Elements are convex rather than purely geometric and express vivacity and character.</p> <p>* Each element is a distinctly recognisable form with its own character.</p> <p>* The elements are compact.</p>
<p>Syntax position</p> <p>connection</p> <p>ordering</p>	<p>* Due to the specific positioning of elements that are applied to the surface of the pottery they must be seen as decoration rather than embellishment.</p> <p>* Pattern elements are positioned horizontally symmetrical and vertically asymmetrical, which, amongst others, accentuates the direction of the line of gravity.</p> <p>* The horizontal connection between elements is accentuated.</p> <p>* The pattern and connecting elements follow a hierarchical order where the smallest are the connecting elements.</p> <p>* The placing of elements follow a hierarchical ordering where the connecting elements are smaller and denser at the connection between the main parts of the pottery, i.e. the body and neck and the body and foot.</p> <p>* The dense compression of connecting elements at the base and neck of the pottery, and the relative openness of the pattern elements on the body of the pottery, create the illusion of convexity, the internal cohesion of the form, and cohesion between decoration and form. The syntactic ordering of the decorative elements follow the principle of convexity as applies to the elements themselves, which happen to accentuate both the interdependency of the parts of the pottery and their individual characters.</p> <p>* The grouping of elements create the illusion of bearing capability.</p> <p>* The lack of vertical co-ordination between pattern elements creates the illusion that every horizontal grouping is a homogenous mass which creates a bearing plane for the next grouping, and that the surface of the pottery has an uninterrupted tectonic cohesion.</p>	<p>Syntax position</p> <p>connection</p> <p>ordering</p>	<p>* No element is repeated elsewhere in the composition</p> <p>* The connections are emphasised.</p> <p>* The swellings and curves at connections indicate life force and the illusion of inner elastic resilience against force.</p> <p>* Organic and tectonic principles occur simultaneously.</p> <p>* There is cohesion recalling a block like form.</p>

	1.C The Doric Order (Howe p.93-113)
Morphology nature	<ul style="list-style-type: none"> * Every element of the Order elevation consists of compact, rectangular block like elements (triglyph, metope, mutule, architrave, column shaft) and discrete connecting elements between them (krepidoma, Taenia, bed moulding and capital). * Each structural element is an individual visual element. * Different forms in elements indicate differing character properties.
admissibility	<ul style="list-style-type: none"> * The elements are horizontally reversible due to their symmetry but vertically irreversible due to difference of top and bottom.
proportion	<ul style="list-style-type: none"> * Open spaces are seen as voids (metope, tympanum and spaces between columns). The metope is not seen as void due to compact composition relative to the metope.. * Free, non structural forms only occur in voids in (metopes), and above (tympanum), the Order. * Variation [excessive] is not allowed in functionally identical elements, but is allowed for in voids. * Elements are not subdivided or superimposed. * Each element has a unique and characteristic proportion.
Syntax position	<ul style="list-style-type: none"> *Each element type only occurs within its own horizontal band. *No element is repeated in another position within the Order.
connection	<ul style="list-style-type: none"> *Horizontal connections between elements are emphasised (The emphasis of the connection between column shaft and krepidoma is through contrast [horizontal/vertical]). *Curved forms only occur at connections and indicate elasticity (All connections do not have to be curved). *The connection that is emphasised the most is the connection between capital and architrave, and in the column the most important is that between echinus and shaft.
ordering	<ul style="list-style-type: none"> * Elements become progressively lighter from the bottom up. * The vertically layered ordering accentuates any vertical axial ordering. * The vertical irreversibility of elements emphasises the direction of vertical axial ordering. * The elements are co-ordinated in the vertical which creates the illusion of supporting lines. * A hierarchical ordering of connections exists, of which the connection between column and architrave [ie capital] is the most important. * A hierarchical ordering of the horizontal bands exist, and their proportions remain constant.



Figure 1a. Geometric amphora from the Kerameikos, Athens, ca 850 BC (Howe 1985, Figure 7, ASCSA 1976, Figure 117)

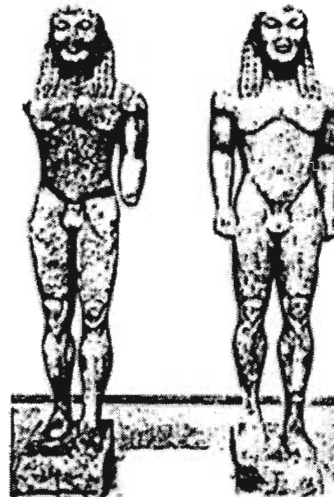


Figure 1b. Pair of statues of the end of the Seventh-century BC, Delphi (Robertson 1975, Figure 10c).

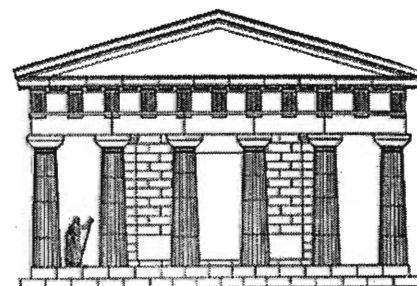


Figure 1c. doric façade of the 510 BC temple II of Athena Pronaia, Delphi (Berve & Gruben 1961, Figure 34)

relies heavily on a specific tectonic vision, and that the tectonic composition of the human body is a visual fiction which explains both its analytical and experienced nature.

Howe's analysis shows many parallels with Attic Geometric earthenware decoration in terms of a basic experience of the composition of form. As Howe (1985: 116) found, it may be used as an indication of a diachronic transference of tectonic rules from one art form to another, as well as of the existence of certain fundamental predilections in terms of the rules applicable to choice of form elements and composition of form. If Howe's analysis is augmented by observations from the earlier female *kore* (like the Nikandre, Auxerre and Hera statues [See Boardman *et al*, 1967, Plates 84-5]), there is synergy with the previous analysis: the totality of the ensemble of pattern elements all show the same, predetermined, silhouette, and any decoration — always of geometric nature — only occurs within the pattern elements like the headdress, hairpiece, shawl or the skirt.

1.3 The Doric façade

Howe's (1985: 93-113) analysis of the tectonic syntax underlying the elevation of the Doric Order (See Table 1.C and Figure 1c), follows on and tests his conclusions of his previous analyses. His conclusion is, as was illustrated at the MG II pottery and Early Archaic *kouroi*, that the identified formal tectonic syntax shows the same analytical attempt at understanding the physical — in this case architectural — reality, but here through the use of the specific morphology and syntax of the colonnade. The analysis holds equally well for Archaic and Classical Doric elevations.

2. Additional analysis of tectonic syntax

2.1 Mycenaean art — Late Cypriot bronze kettle stands (rod-tripod and cast square types)

Rod-tripods (See Figure 2a) are stands for ceremonial cauldrons, occurring comparatively late in the Mycenaean period in Urartu, Palestine, Cyprus and Crete, and afterwards sporadically throughout Hellas (Schweitzer 1971: 164). Square cast kettle

stands like that in Figure 2b and described in Matthäus (1985: 314, No. 904), are endemic to the Late Cypriot cultural enclave.

The analysis in Table 2.A shows that these artefacts, on the whole, are compositions of distinct geometric parts which directly explain the physical forces acting upon the object, that the composition of the whole follows a premeditated analytical scheme, that there is a very honest, realistic expression of reality in the structural and form composition of the stands, as well as the fact that there is a thorough understanding of the use of geometry in the decorative schemes. Of special note is the allowance of concave or naturalistic form elements at connections between pattern elements. The artefacts arrive at the basic Geometric concept before its realisation in Geometric earthenware, but here there is no idea of layering.

2.2 Hellenic art — Geometric bronze ridged leg tripod cauldrons (Unified tripod and cauldron type)

Geometric kettle stands and cauldrons eventually replaced the monumental Geometric *pythoi* as the largest artefacts in the *temenoi*, and are deemed to have been of the same scale of importance than any timber memorial column would have been until the advent of monumental stone sculpture in the form of the *kouros/kore* type and the stone kettle stand and memorial column types. The early Geometric bronze unified tripod cauldrons are deemed to have originated in the Peloponnese from the tenth-century BC, whereas the classic Geometric III-style hammered cauldron examples (see Figure 3a) probably originated on one of the main islands of the Cyclades between 750-25 BC (and prevalent on Delos) before being produced on the Doric mainland (Schweitzer 1971 168: 176-7). There were other types, like the conical unified type from Olympia (see Figure 3b) shown by Daux (1966, Figure 13). This type follows from Urartian and Syrian prototypes, and in its later Archaic format has a bearing on the achievement of the simplified column and capital stone kettle stand and memorial column typologies.

TABLE 2	2.A Mycenaean Late Cypriot kettle stands		2.B Hellenic Geometric bronze tripod cauldrons
<p>Morphology nature</p> <p>proportion</p> <p>admissibility</p>	<ul style="list-style-type: none"> * The pattern elements are formed by simple rodded elements without accretions, joined together to create pattern elements in the shape of two-dimensional compact geometrical planes (triangle, square, rectangle) and three-dimensional forms (cylinder, cone, cube), that are either open or filled with physical material, and in the cast models the panels are made up of linear elements grouped together in tight formations. * The boundaries of the pattern elements are convex rather than concave, and in their form express the ability to resist force. * The main pattern elements are the ring/square upstand, and either square or triangular support elements. * All decoration takes place within the boundaries of the clearly defined pattern elements.. * Proportions seem to be canonical, and express structural units within the realm of believable structural behaviour. The proportion of the whole object is compact and creates an illusion of a sturdy, block-like mass. Where the proportion of the whole object is made more slender, the canonical structural proportioning framework remains unaltered. * Only geometric forms of convex character are used for pattern elements, and naturalistic forms are used at connections . * Pattern elements are not subdivided or superimposed. * Naturalistic forms only occur at connections 	<p>Morphology nature</p> <p>proportion</p> <p>admissibility</p>	<ul style="list-style-type: none"> * The pattern elements are the upward flaring legs, the circular handles and the cauldrons which are hyperbolic spheroids cut of at the top. The legs are V-shaped/elongated triangles. * The basis of the decorative scheme on the legs are plain legs with vertical ribs edging the pattern element, progressing to multiple horizontal patterns between mainly vertical bands of tangentially connected circles and parallel zigzags, or alternatively vertical grooving , with selections of the formal Geometric vocabulary in the very last examples. * The V-shaped leg gives the impression of gripping the cauldron at its uppermost rim and transferring load vertically downwards. * The proportion of the leg elements are concave on full-frontal elevation, but convex when seen from any other oblique or side view. * The proportion of the total composition expresses a block-like solid form, with huge parts expressed as voids in the form, and the remainder being the structural elements. There is a tremendous tension in the way the slender legs gently clasp a heavy weight between them and transfer the load vertically. * Geometrically convex elements are used, and concave elements are allowed at connections. Of note is the superimposition of the pattern elements "legs and cauldron" on elevation, and the triangle plan ordering of the legs with the round form of the cauldron on plan.
<p>Syntax position</p> <p>connection</p> <p>ordering</p>	<ul style="list-style-type: none"> * The pattern elements form a horizontal element at the top, which signifies a bearing foundation element for the cauldron, with tectonically stable square/triangular pattern elements positioned to express the ability of accepting load. * Even though the tripods are made up of rods, the impression is of a mass positive form. * The meeting between cauldron and stand at the ring/square upstand is emphasised through the horizontal nature and denseness of the ring or square upstand, further emphasised through horizontal edging of the pattern element. * The connection between ring/upstand and the leg top is emphasised by a sharp, upside down V connection between leg and ring, or by the insertion of a horizontal connecting element (almost as is the case with the architectural abacus), or in the case of the square upstand, by figurative connecting elements allowing for a three-dimensional connection of the intersecting planes. * The connection with the ground is accentuated. * In the rod-tripods the primary connection between leg and ring is emphasised with a volute scroll, and the secondary connections with various other naturalistic elements. * The volute scroll connection is in essence a structural triangulation like the other rod elements, but expressed with a naturalistic rather than geometric form. * There is hierarchical ordering in the pattern elements in the sense that the heaviest element is at the top, at the meeting place with the cauldron, followed by with the support panels below (filled with decoration in the case of the square panels) and the very open portions between legs at the bottom. * There is hierarchical ordering of the connections, with the horizontal connections between ring and square panel and ring and top of legs being emphasised. * All figurative elements are ordered within a decorative scheme, conforming to the strictures of the surrounding frame of the pattern element. 	<p>Syntax position</p> <p>connection</p> <p>ordering</p>	<ul style="list-style-type: none"> * The cauldron at the uppermost part of the composition reads as the horizontal pattern element to be carried. The legs or vertical pattern elements overlap with the horizontally expressed cauldron. the physical connecting element is around the widest regions of the cauldron, but the flaring out of the top of the legs past the real connection to the cauldron create an illusion of structural connection at the very top due to the very wide flaring at the rim as well as due to the extreme contrast between the vertical and horizontal elements at the rim. * Each pattern element in the composition is emphasised to such an extent that the connections of both legs and handles are completely underplayed or euphemised by the use of flat metal without borders, blending in with the surrounding metal of the cauldron. The main expression is of individually expressed pure forms in interplay with each other, without the object reading as a continuous plastic form. Triangulated connections between leg and cauldron (a later addition to earlier models) are hidden from view, as is stiffening of the legs, in order not to disturb the harmonious ensemble. * In later forms the ring handle is connected with the cauldron by means of a vertical element under the ring. This connection expresses the vertical axis of load together with that expressed by the legs and centre of gravity of the cauldron. * The hierarchical ordering in the vertical direction of the load in terms of weight is from heavy to light and massive to slender. * The ornament on the legs follow the dictates of the form of the leg, and are ordered into sections that still mainly express a vertical axial line on the leg. However, in the later examples of geometric pattern making on the legs, decoration does not express the volumetric qualities of the element, and does not show any densification at points of connection, leaving the expression of a singular element not really connected to anything.

The analysis in Table 2.B shows that the unified tripod cauldron consists of a visual fiction reflecting the metalworker's or decorator's conceptualisation of the artwork as abstract tectonic entity as well as physical entity, but now differing from the Cypriot rod-tripod type in terms of inclusion of an organic tension in the abstract conceptualisation.

Of note is the complex junction at the top rim of the cauldron — where connection is signified by concave form as well as contrast between horizontal and vertical — and the conceptual clarity and level of abstraction of sculptural form arrived at in the early examples of the tenth-century BC, thereafter transferred to the eighth- and seventh-century BC examples. (From typological analyses we know that the abstract nature of the three-dimensional compositional concept weakens progressively over time due to a later lack of synthesis between decorative scheme and nature of the leg elements.) In the early mature works there emerges a fictional scheme, representative of a perceived *physis*, much different from the honest structural expression of the earlier rod-tripods.

The analysis of eighth-century BC Hellenic MG II earthenware provided by Howe shows remarkable coincidence with the Late Cypriot kettle stands, especially the square cast types, where there is a clear idea of surface. Due to the geometrical basis of the structural design of the metal kettle stands and the geometrical nature of ordering the linear metal elements within in a geometrical shape, as well as due to the fact that these artefacts were widely dispersed in the Hellenic world, we could possibly see them as providing part of the inspiration for the tectonic and geometric ordering of decoration on the following Orientalising earthenware, to be discussed later.

2.3 Correspondence between Attic MG II earthenware and that of the Cycladic and eastern Ionian systems where the stone Ionic Order was founded

Due to the first occurrence of the stone Ionic Order at Delos and Naxos and shortly thereafter at Ephesos, relevant

Geometric examples of pottery which were specifically present on Naxos, Paros and Ephesos before the time of founding are identified in order that an analysis of these works may be brought into relation with Howe's analysis of Attic MG II ware.

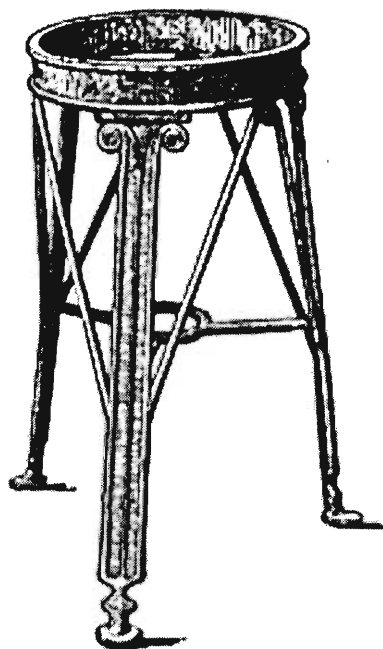


Figure 2a. Mycenaean rodtripod, Vokastro (Schweitzer 1971, Figure100).

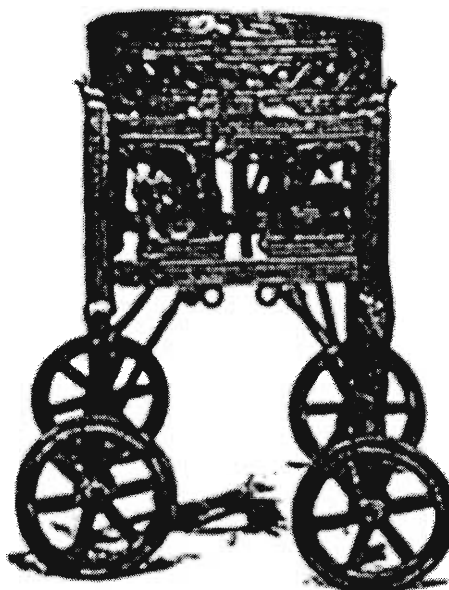


Figure 2b. Mycenaean Late Cypriot cast square bronze kettle stand (Matthäus 1985, Plate 102 top left).

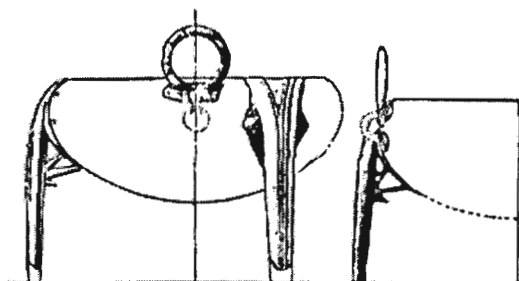


Figure 3a. Unified-type bronze tripod cauldron, Ithaca (Schweitzer, 1971, Figure 101).

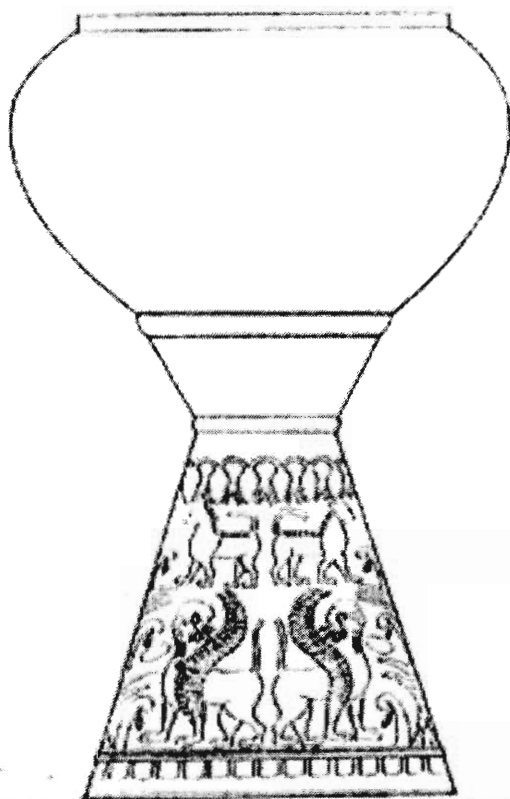


Figure 3b. Reconstructive drawing of a conical bronze cauldron, Olympia (Daux 1966, Figure 13).

Relevant examples are preiconographically described by Schweitzer (1971: 67-70). Desborough's (1964: 259) research shows the presence of Attic style proto-Geometric ware (originating in Thessaly) on Naxos and Delos. Although Desborough's work is definitive, Hopper (1976: 77, 79-80) highlights the inadequacy of research work for the Cycladic islands; Interestingly, no finds exist in Samos, but finds at Miletos show local manufacture following the Attic tradition (Hopper 1976: 80). Roebuck (1959: 79) reports that direct trade in Attic

ware to [east] Ionia starts in 600-575 BC. However, mature Geometric ware is found in the Cyclades on Naxos and Paros from 775 BC onwards. As elsewhere in the Cyclades, these form two distinct local styles, both of which originated from a local proto-Geometric phase — which were already copies of Attic ware — and copies of Attic High Geometric ware (Schweitzer 1971: 68), of which an example was shown in Figure 1a. In the first style — apparently from Paros — the triple line “triglyphs” are omitted for other connecting elements, and the control, restraint and balance of the Attic ware is lost as “the metope fillings are made bizarre ... and different styles of drawing on handle zone and on the belly contrast artificially” (Schweitzer 1971: 68).



Figure 4. Naxian Geometric ware without “triglyphs and metopes” (Drawing by Buschor in: Schweitzer 1971, Figure 31).

The second style — apparently from Naxos — shows a far stronger Atticizing style, and even the triple line motive remains. (The examples of Naxian-style ware that negate the canonic Attic scheme, as shown in Figure 4, are few. Schweitzer (1971: 68-9) indicates that there was cross lending between the styles). In terms of the earthenware vessel decoration it appears as if the influence of Attic High Geometric ware was an important factor in the Cycladic Ionian architectural founding system, and that the high correspondence between the Naxian style and Attic ware makes further iconographic interpretation, other than that

done by Howe unnecessary.

In terms of the founding process of the Ionic Order in the Cyclades, the less controlled nature of the decoration of the Geometric pottery from Paros indicates the existence of a different approach, to be taken into account in any evidence of typological differences in architectural syntax between Naxos and Paros. The fact that no mature Attic ware are found in any quantities in east Ionia until 600 BC, makes that their influence on the eastern Ionic architectural system at the time of the founding of the Ionic Order would be less. Evidence of any architectural typological differences should bear this in mind.

2.4 Hellenic art — Orientalising artefacts

The process of Orientalising is discussed at some length by Robertson (1975a: 21-33), Hopper (1976: 98-102) and Burkert (1992: 15; see also his sources of the main surveys of Oriental art products in Greece). The material evidence attests to the staggering quantity of Oriental products in the religious sanctuaries of Hellas, especially from just before 700 BC onwards, although evidence shows that trade with the east actually never ceased from Mycenaean times. The Orientalising products are well represented in the total Ionic architectural founding system, in particular at the Samian Heraion and on Naxian dominated Delos, but also in east Ionia. The important fact is that the — already startlingly new — Geometric iconography was confronted with a whole — to the Hellenes, new — mature, “other” religious iconography, together with the artistic *esprit de système* (D’Alembert’s term is explained by Fisher (1992: 31)) that accompanied it. The “other” was adopted in a transformed — Hellenic — context, and gradually transformed into “our new”. The new motifs, stylistic traits and techniques were copied and quickly assimilated within the Hellenic artistic sphere. These newly made works were just as soon re-interpreted from the indigenous artistic base achievement that was present — to such an extent that, at a point, it was difficult to tell the Oriental from the Hellenic. This process evolved into the formation of a mature and monumentalised Archaic Hellenic art.

In terms of artistic predilections just before the founding of the stone Doric and Ionic Orders one should ideally look at local Orientalising works — where the Hellenic spirit had made its mark — of the period 730-625 BC. The main groupings are bronzeware (bronze protome cauldrons, libation bowls, standers and harnesses), Orientalising Corinthian earthenware, and wooden and stone statuary of deities.

2.4.1 Hellenic art — Early Archaic Orientalising earthenware from the Cyclades

Robertson (1975a: 24) says that new [eastern] ideas were first taken up and worked with in pottery of Doric Corinth — the hub between eastern and western ports (and Athens) — rather than in east Ionia. As regards the physical (imported) presence of this ware in the Ionic cultural sphere, Orientalising earthenware from Corinth dominates in Ephesos (Bammer 1984: 175), is strongly represented at Samos (Kyrieleis 1986: 190) but not in Miletos and Chios (Roebuck 1959: 77-8). The imports to Samos are mostly from the period 700-575 BC (including Attic ware), simultaneous with imports to the Cyclades (Roebuck 1959: 76-7, 81; Kyrieleis 1986: 190). Roebuck (1959: 81) indicates that Attic Orientalising ware only arrives in southern Ionia by 600 BC. Due to the occurrence of a regional school of Orientalising earthenware on the Cyclades (apart from the strong school of Melos there also existed one on Naxos and on Mykonos (Robertson 1975a: 28-9; Schefold 1966)), specific works from these areas which predate the Early Corinthian phase, are used in the analysis of *tectonic* principles in order to look for correspondences with the local architectural system (see Figure 5).

The analysis of the rules regulating the form and decoration of the Cycladic Early Archaic Orientalising earthenware in Table 3.A shows that the decoration of these forms follows an analytical scheme that includes a dialectic between geometric order and figurative freedom. The two combine within a strict schema which expresses a rational understanding of the physical reality, without disclaiming the validity of the organic or naturalistic

understanding thereof.

The inclusion of representational form breaks with the preceding Geometric tradition. Nevertheless, rather than the Cycladic Orientalising earthenware (similar to the Corinthian type) being seen as non-Hellenic or radically different from other Hellenic art forms preceding the Ionic Order, they are both deemed to have acted as vehicle for the transference of a tectonic vision into the Archaic period. The achievements suggesting dialectic tension in tectonic form, as shown in the Cycladic vessels, are seen to be suggestive of achievements included in the tectonic scheme of the later Ionic Order, and which are present but more subdued in the Doric.



Figure 5. Amphora from Mrelos, ca 650 BC [Apollo meeting Artemis]. (Schefold 1966, Figure 10).

2.4.2 Hellenic art — Early Archaic Orientalising bronze protome cauldron with conical stand

A fusion of the bronze rod-tripod stand and bronze protome cauldron types already existed from the middle of the eighth-century BC in Urartu (Akurgal 1961,

Figure 30) and slightly later in Cyprus in the early years of Assyrian rule (Karageorgis 1981: 127-8), and evolved as the bronze protome cauldron with conical stand in other parts of Greece from 700 BC (Robertson 1975a: 31; Akurgal 1961, Figure 35; Daux 1966, Figure 13), most reaching monumental size (ca 2,0 m). The prototype of the conical cauldron stand, together with the griffin and lion protomes, hails from Late Hittite Urartian-north Syrian examples (Akurgal 1961: 59-60; Also see Assyrian relief work described by Barnett ([*sine anno*], Figure 107)). In eastern Ionia the main production centre was Samos, from the late Seventh to early Sixth Century BC (Kyrieleis 1986: 190). There is a reproduction on a Tuscan *terracotta* piece of this type of bronze kettle stand with little volute elements carrying the cauldron (Phillips 1970, Figure 5).

These Hellenic bronze kettle stands were representative of monumentalised art immediately prior to the inception of the stone Orders. Whilst their presence as reference material for the making of vertical support structures in stone is notable, the earlier analysis of Geometric cauldrons may suffice for the purpose of this exercise.

Shiple (1987: 88, note 52-5) mentions that the architects Rhoikos and Theodoros of Samos, apart from architecture, were involved in bronze work casting technique and design. One learns that architects were involved in other art disciplines which were connected to architecture, that architects were involved in design *per se*, and also that they may probably have been very conversant with form traditions of the Anatolian, Syrian and Cypriot artistic sphere. In terms of architectural bronze work, the use of bronze *appliqué* on Early Archaic buildings and columns, indicated from various examples, underscore this connection.

2.5 Relevance of Early Archaic *kouros* sculpture to the analysis of tectonic rules underlying architecture from the Ionic cultural sphere

Notwithstanding the analysis of the tectonic syntax of the *kouros* sculpture

provided earlier, it is important to note that the origin of Archaic sculpture, from the beginning of the seventh-century BC, lies in the Daedalic style — according to Casson (1970: 50-64) rather an extension and progression of Mycenaean and Geometric *ζόανον* sculpture than a completely new tradition — flowing from the Argolid on the Doric mainland, but also Crete and the Cyclades, birthplace of monumental marble Ionic architecture. The scale-wise monumental works emerge from the last half of the seventh-century BC (Boardman 1978: 13), with the Naxian cultural sphere featuring dominantly.

This is not the place to follow the intertwined transference of skill and technique to Hellas from various sources (The reader may peruse Akurgal 1961: 34, Figure 9-10; Casson 1970: 80; Charbonneaux *et al.*: 22; Walter-Karydi 1994; Boardman 1978: 14, 26, Figure 30, 40; Karo 1970 [1948]: 94; Jacob-Felsch 1969: 13, amongst others), but rather to identify Naxos's dominance in the field of monumentalising the naked *Kouros* sculpture in its Hellenic format, from roughly 650-550 BC (see Figure 5), as well as stressing the importance of these sculptures as the most popular, monumentalised art works of the time and existing before the founding of the Doric and Ionic stone Orders. (The monumental seated lion and sphinx sculptures of the mainland (see also Boardman 1978, Figure 38, 44), Aegina (see Walter-Karydi 1987: 60) and Delos (see Robertson 1975b, Figure 17a; Karo (1970 [1948]: 184; Jacob-Felsch, 1969: 11; Gallet de Santerre, 1958: 292-3) are important types, especially the sphinx as part of the Ionic memorial column ensemble, but their tectonic interpretation are not deemed necessary for this analysis. The seated-Figure statue typology which is also important as type, mostly occurs on the east Ionian mainland (see Akurgal 1955: 229, Figure 188-92; Emlyn-Jones 1980: 46), and in future needs to be incorporated in studies regarding form and proportion of east Ionic architectural elevations.

It is important to note the amount of transformation involved in accepting the Oriental model of the free-standing human sculpture into the Hellenic sphere. Jacob-Felsch (1969: 13) has indicated that the

Hittite-north Syrian sphere of influence was the most influential force in the Hellenic start [author's underlining] in the production of statues from stone. Crete, with its strong Oriental artisan population, appear to have been the impetus for the re-emergence of monumental hard stone sculpture on Naxos (after the earlier Mycenaean Cycladic plank idols), a thought accepted by Boardman (1978: 26) and borne out by specific craftsmanship details. Apart from some influence on Naxos by female *terracotta* statues from Sicily (Karo, 1970[1948]: 94), most influence in terms of the monumentalising process of sculpture appears to come from Egypt (see Guralnik 1996), and to this may be added the transfer of the typology of the male striding god, becoming the *kouros* statue. The more formal contact between Egypt and east and west Hellas, from the time of the foundation of Hellenic Naukratis on the Delta, seems to Boardman (1978: 20) to have been the vehicle for transference of the more technically detailed aspects needed for true monumentalisation of sculpture in terms of scale and noetic content. Even though Carpenter (1962: 92-3), in the face of the above, gives the Egyptians all credit for the emergence of glyptic art in Greece in the seventh-century BC, he makes the interesting point that the specific Egyptian sculpting-style type (an archaistic style type at that), was a glyptic rather than a plastic style, and as such provided the persuasive impetus and the facile formative framework within which the beginnings of Greek sculpture could progress rapidly.

The *kouros* Figure is thought to have been introduced into the Hellenic *repertoire* through bronze works from Crete (Boardman 1978: 23). After being accepted as comparable votive elements in sanctuaries by the end of the seventh-century (like the Argive Kleobis and Biton statues at Delphi from around 600 BC, shown in Figure 2b), they attained colossal scale, the first examples being the Naxian manufactured statue of Apollo [being a *kouros* with attributes of the deity attached] at the Naxian *Oikos* at Delos (Courbin, 1987: 65-7, note 15; [four times life size]), the unfinished statue of Dionysos (?) on Naxos (Zaphiropoulou, 1988: 25

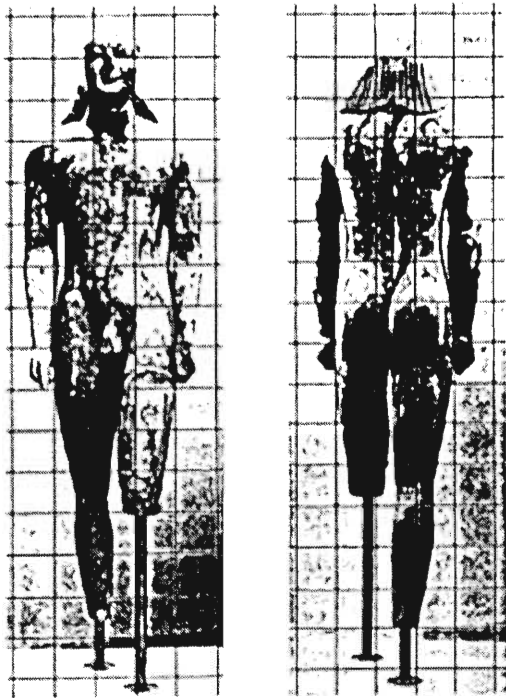


Figure 6. The 4,78m high *kouros* from Samos overlaid by the Samian foot grid (Guralnik 1996, Figure 10-1).

[almost six times life size]) and the Isches *kouros*, a statue of Apollo from Samos (Kienast, Kyrielys & Weishaar 1985: 378-82, 442; Guralnik 1996 [three times life size]) soon after 600 BC, shown in Figure 6 above (there are also colossal statues on Thera (Karo 1970[1948]: 184)). These examples all predate the first all stone Ionic temples on Delos, Naxos and the Samian First Dipteral Heraion. Style transferences from north Syria, Cyprus and Neo-Hittite Karpassos are possible beyond the known Egyptian references (see Jacob-Felsch, (1969: 14); Boardman (1978, Figure 56)), the recent linkage of newly found architrave sculpture of the Archaic Apollo temple at Didyma with Hittite/Assyrian sculptural work (Schattner 1996: 23) and the strong Oriental influence in form and approach in the seated-figure sculptures (Casson 1970: 98) underscore the specific influence of the east on Hellenic sculpture.

The description of the balanced unity of statics, dynamics and tectonics in these works by Boardman *et al* (1967: 155) serves to underline Howe's analysis. (The reader is referred to the excellent work of D.J. Van Den Berg (1972) for further

iconographic interpretation, together with further iconological interpretation).

Taking into account the complex origin of the Hellenic *kouros* form, the retention — in the face of the heavy reliance on earlier Oriental forms and techniques during the formative stages — of certain Hellenic tectonic predilections in the making of the *kouros* Figure, is highly significant for this inquiry regarding transference of a tectonic paradigm.

2.6 The Archaic Ionic façade

The archaeologist Gruben (1963) gives a very apt description of the dualistic tectonic nature of the Ionic Order as he finds it in the Archaic Apollo temple at Didyma. He points at a tendency in Ionic architecture where the static framework of a building may be decorated with plastic forms (for example the sphinxes and lions on, as he believed, the architrave corners, now known to be on the frieze section), and where stereometric elements like epistyle (beam), column, wall, cornice and raking *sima* are transformed into organic liveliness through the medium of vegetative ornament (leaf mouldings, volutes and palmettes), plastic friezes, swelling, richly profiled bases and powerful capitals (to Gruben unrelated to structural performance in terms of form), in direct contrast to the rationality of the extreme metrication and schematisation of the building plans, which to him indicate "einer letztlich unlösbaren und ... unbewältigten Antinomie." (1963: 176).

From the author's analysis of the Archaic Ionic façade in Table 3.B we find that the formulated formal tectonic syntax shows an attempt, similar to the Geometric earthenware and Archaic *kouros*, at creating a visual fiction which represents the architect's abstract understanding of the physical, in this case architectural, reality — and, as was the case with the Doric Order, through the use of the morphology and syntax of the colonnade. However, there is also a strong evolution of the dialectic tectonic experimentation started in the Hellenic bronze tripods and expressed in Orientalising earthenware, and much more experimentation in terms of possible form elements, the overall content of

every individual building's "Order", as well as in terms of positioning of decoration. Different from the Doric, the process of attaining the final canonic form of the Ionic Order took place over a period of over 100 years, and even in the Classical era much uncanonical experimentation was evident.

The analysis of the tectonic syntax included in the Archaic Ionic Order (an early example is shown in Figure 7) shows correspondence with those "rules" formulated for the Doric Order by Howe. This indicates that on the whole the Doric and Ionic architects worked from the same tectonic framework and — differing from earlier perceptions — shared a similar abstract vision of how to express a physical reality in terms of architectural morphology and syntax. The analysis also indicates that the Ionic Order — far from being undisciplined or decadent — showed the same rigorous adherence to predetermined rules, and tried to resolve the same tectonic issues. In this attempt the Ionic capital, as single, highly designed element in the Order, follows the same rules showed to be inherent to the Ionic Order and very strongly so, even if the form did allow for much experimentation.

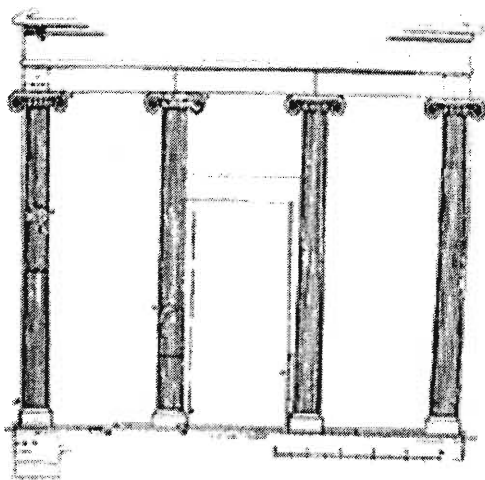


Figure 7. Front façade of the Dionysos temple Phase IV, Iria, Naxos, of the ca 575 BC (Gruben 1987, Figure 39).

The main physical differences between the Doric and Ionic Orders come about in the allowance of decoration on "functional" elements rather than only in "non-functional voids", in the allowance of subdivision of elements (rarely applied on

the corner capital inside volutes), and most importantly, in the allowance of a wide range of proportional latitude for specific forms. Whilst the earliest Ionic architecture did evolve in stone and timber prostyle buildings, Early Archaic Ionic elevations show that there is little reliance on the strictures of timber construction (elements like the dentils, incidentally only appear in stone at the end of the sixth-century BC). Rather, pre-existing elements from various non-architectural sources found their way into the formal Order. In this sense the Ionic Order, like the Doric, is mostly a tectonic fiction — in the sense implied by Carpenter at the beginning of this article — even though it was not a complete stone invention.

The Doric capital form — similarly the column slenderness ratio — shows a wide latitude in terms of proportions in the evolutionary Archaic stage only. Because of this, and because the evolution of the Doric Order happened in a very short span of time, it is perceived as more static in terms of proportional criteria. In the Ionic Order, the evolution towards canonic form evolved from the seventh-century right into the Classical period, involving composite materials, and leaving the impression of freedom and non-canonic design. This non-canonic approach, even in Classical Ionic design, has recently been confirmed by Gruben (1996). It is clear to see that the base and capital of the Ionic Order are more complex than any form included in the Doric Order, and allowed for far greater experimentation and manipulation. Far from being unprincipled, other iconographic interpretation of the first generation Archaic Ionic Order (not described here) shows a steady increase in noetic control, lots of experimentation with horizontal and vertical proportions, but also, at least in terms of the base and capital element, the achievement of interim, regionally bound canonic forms and proportions.

Due to the fact that the Ionic column and capital were similarly used as memorial column element, like the well known Naxian sphinx column at Delphi, even more experimentation occurred outside the strictures posed by systematic building.

Whilst the allowance of decoration

on “functional” elements in Ionic architecture definitely lead to less abstract form than that of the Doric — one may only look at the example of the Archaic Apollo temple at Didyma — the underlying principles remain similar. In the Ionic Order the decoration was always controlled and bounded within the outline of permissible areas, definitely decoration rather than ornamentation. In terms of the subdivision of elements, this happened so seldom (like at the inner volutes of the corner capital), that it is almost of no importance.

Finally, a major difference between the Doric and Ionic Order is that whereas the Doric became more rigid and contained within stark, pure, geometric form outlines over time, the Ionic started off like that, but evolved into ever more independent forms that defied the three-dimensional stone forms from which they originated. Rather than this being seen as a flight from rational order and control, an analysis of elements of Ionic architecture over the total Archaic period (Bakker: 1999) shows the simultaneous increase in noetic control of form, echoing the Doric evolution but in a radically different way. This vision of the Archaic Ionic Order shows the simultaneous existence of freedom and control within one overarching idea, but rather than being an irreconcilable antinomy, as interpreted by Gruben above, there exists a dialectic that is indicative of inter-relatedness and mutual supportiveness rather than exclusiveness and discord, a complex but coherent dialogue between two poles rather than mere opposing coexisting elements. It is deemed of importance that the Ionic capital is a very important and active element in this total dialectic, rather than merely a non-structural, decorative element. This interpretation of the Ionic Order is in contrast to the prevailing descriptions, and may serve to place Ionic architecture next to the Doric in terms of the achievement of a coherent tectonic vision.

3. Conclusions

In answer to the questions posed at the beginning of the article, by looking at additional material the authors come to the same conclusion as Howe, namely that the important, monumentalised art forms produced in the Hellenic sphere up to the

Early Archaic period, even though they differ typologically and stylistically, point to a predilection for a certain type of vision of interrelated parts which act together in a way which fictitiously expresses a perceived reality, and which contains both an analytical and organic understanding of the *physis*. It was also found that the tectonic approach which existed in some of the tereutic ware of the Late Mycenaean period during the so-called “Dark Ages”, pre-figured the geometric scheme utilised in Geometric earthenware. From this conclusion the Geometric “expression” was seemingly not a new invention. However, where most of the Late Cypriot kettle stands were direct or “honest” geometric representations, one discerns the emergence of a more dialectic, abstract expression in the Hellenic kettle stands. This more inclusive vision of the *physis* is similarly expressed in Geometric earthenware, evolves further in the Orientalising type, and is finally also expressed in the *kouros* statue and architectural Orders. A specific Hellenic formulation of the basic rules of making tectonic form and of expressing an abstract understanding of the physical world is deemed to have been achieved in these artefacts. However, other than Howe who sees it is a singularly Hellenic cultural trait, from an understanding of the co-constructural nature of cultural constructs, from the cultural *koine* existing during the period in question, as well as from analysis of the works themselves within a wider artistic context, is clear that one must acknowledge both the foreign impetus and the Hellenic re-interpretation thereof.

The Doric Order, in the specific choice of morphology and syntax, shows a direct continuation of the tectonic fiction included in the foregoing Geometric tereutic ware and earthenware and also the Archaic *kouros* form. The analysis of Cycladic Orientalising earthenware, seen as representative of Corinthian Orientalising ware, shows that while there is a great amount of “fit” with the preceding artefacts, they may be seen to have introduced a new approach which simultaneously accepted and continued existing Hellenic traditions achieved in the minor arts, and which approach was specifically transferred to Ionic architecture.

TABLE 3	3.A Cycladic Early Archaic Orientalising earthenware.		3.B The Archaic Ionic Order elevation
<p>Morphology nature</p> <p>admissibility</p> <p>proportion</p>	<p>* Pattern elements are broad bands filled with naturalistic scenes in the primary bands and geometric divisions in the secondary bands. Connecting elements are horizontal bands of single lines, geometric patterns, or double lines filled with repetitive patterns.</p> <p>* The primary broad bands are expressed as voids, to be filled with naturalistic form.</p> <p>* No geometric element of vertical nature appears in the primary bands, but do occur in the secondary band at the bottom of the form.</p> <p>* All decoration in the connecting elements are repetitive elements.</p> <p>* The proportion of the primary and secondary broad bands are proportioned to occupy the major parts of the various zones of the earthenware form.</p>	<p>Morphology nature</p> <p>admissibility</p> <p>proportion</p>	<p>* Every element of the Archaic Order elevation consists of compact, convex elements (horizontal capital element, tapering shaft, krepis) and discrete connecting elements between them (mouldings, echinus, abacus, spira and torus base elements). Known concave elements like the conical echinus and the outward flaring leaf-cyma column base appear very sporadically.</p> <p>* Each structural element is an individual visual element.</p> <p>* Different forms in elements indicate differing character properties.</p> <p>* The elements are horizontally reversible due to their symmetry but vertically irreversible due to differences of top and bottom.</p> <p>* Open spaces are seen as voids (space between entablature mouldings, tympanum, capital polster). However, some of the structural elements like the architrave corners, the column bottom and top ends, as well as the capital canals and volute origin are also used for decoration.</p> <p>* Variation is allowed in functionally identical elements and in voids.</p> <p>* Elements are sometimes subdivided (corner capital volute inner corners; canals middle section) or superimposed (in one instance a double cyma).</p> <p>* There is wide variety in proportion of specific elements.</p>
<p>Syntax position</p> <p>connection</p> <p>ordering</p>	<p>* The primary broad band is situated at the place of biggest circumference of the form, and the secondary broad bands are found at the base and also on the neck in the case of a pithos.</p> <p>* The connecting elements are positioned at the rim, base, and sometimes at a contour change on the vessel form either in the middle, top or bottom.</p> <p>* The positioning of elements take the realities of the earthenware form into account.</p> <ul style="list-style-type: none"> • The connections occur between primary and secondary bands, and at the extremities of the form. <p>* The figurative scenes in the primary broad bands are ordered within the spaces framed by the functional elements of the forms.</p> <p>* The geometric elements in the secondary broad bands are ordered symmetrically within the main composition of the form.</p> <p>* A horizontal hierarchical ordering exists is expressed in the proportioning of the pattern elements (broad bands) and connecting elements.</p> <p>* A vertical axiality or line of gravitational force is suggested in the co-ordination of the centre-line of the figurative scenes and the geometrical ordering of the bottom secondary broad band. In the relief-pithos examples the narrative scenes are sometimes stacked like coursed brickwork, but still co-ordinated around the axial centre-line of the work.</p> <p>* There is ordering in the whole of the form in the co-ordination of connecting elements, pattern elements and the physical parts of the earthenware form.</p>	<p>Syntax position</p> <p>connection</p> <p>ordering</p>	<p>* Each element type only occurs within its own horizontal band.</p> <p>* Only moulding elements are repeated in various positions within the Order.</p> <p>* Horizontal connections between elements are emphasised.</p> <p>* Curved forms do not only occur at connections, but they do occur there and indicate elasticity</p> <p>* The connection between column and crepidoma shows an evolution over time, i.e. from strong conical base elements for early columns in which contrasting angles play the major part, towards strong accentuation through use of multiple convex elements divided by concave elements. Here there is another evolution towards an interplay between the concave and convex elements which culminates in the Attic base form.</p> <p>* Elements become progressive lighter from the bottom up.</p> <p>* The vertically layered ordering accentuates any vertical axial ordering.</p> <p>* The vertical irreversibility of elements emphasises the direction of vertical axial ordering.</p> <p>* The elements are co-ordinated in the vertical which creates the illusion of supporting lines.</p> <p>* An hierarchical ordering of connections exists, of which the connection between column and architrave [ie capital] is the most important through the strong downward curve of the volute. In the large scale of the total ensemble of the Ionic Order the cyma acts as connecting element between canals and column shaft, and the abacus [where it occurs] acts as connecting element between capital and architrave/sculpture base. In the case of the capitals with obtuse angles and without abaci, the connection is emphasised through extreme contrast of angle.</p> <p>* A hierarchical ordering of the horizontal bands exist, and their proportions do not remain constant.</p>

The analyses included in this article are offered to be immediately useful in a didactic context, in which the transference of abstract ideas from one art form to another, the effects of the acceptance of tradition in design, as well as the evolution of an *esprit de système* over time, may be demonstrated and made useful to other design contexts. As part of a wider architectural typological argument, the conclusions should however still be tested by further research on the timber heritage of portions of the Ionic Order (sections of which we know to have existed in timber before its stone phase, for instance the simple entablature of the prostyle of the Dionysos Phase III temple at Iria, Naxos, and the horizontal portion of the Ionic capital), in order for the achieved tectonic analysis to be enriched from this perspective. Together with this, the tectonic detail of many Archaic Hellenic buildings still needs to be filled in from research. Lastly, an ecosystemically based iconological interpretation of the evolving Orders, which incorporates linkage with evolving achievements in terms of religion, science, politics and socio-cultural aspects, is needed to gain further insight into the intricacies of abstract content of the Orders which would explain the evolution of the described tectonic syntactic approach over time, and which can inform and enrich design theory in the present.

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