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## Appendix D: On the question of mineral weight in the Canon

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## APPENDIX D.

### ON THE QUESTION OF MINERAL WEIGHT IN THE *CANON*

Barring the unlikely discovery of the text of the *Canon* our conception of that vital document will always be theoretical and inferential. However, at least a new point of departure is given by my demonstration that contrapposto is as much a scientific problem in terms of weight and gravity (a recent analyst of Polykleitan biomechanics on the basis of copies did not hesitate to use the word gravity: Leftwich 179, 246) as it is an aesthetic one. This leads me to some further reasoning about the famous ratios of the master. It seems that the ratios envisaged by most students of the *Canon* are abstractly two-dimensional, whereas in a human figure qua statue the three dimensional ratio of part to part, that is, the flesh-volume of the total form, is equally vital. A forearm, for example, might be in perfect two-dimensional proportion to its hand, but if that forearm is decidedly fat or skinny, beauty will not result. And how much more even might this be the case in reference to thighs and buttocks? A curvaceous amplitude of this part of the anatomy in conjunction with male nudity is a notable feature of Greek sculpture from Geometric figurines to Hellenistic Hermaphrodites. In fact, the very inevitability of this feature—which eventually had a qualified effect on female figures—makes it an integral part of the Greek view of the human being.

The inference I draw from all this is that Polykleitos must have made some provision for the appropriate amount of weight for the various parts of the body—because otherwise the formula for a normative figure would have been severely incomplete for the teaching purposes the book served.

Moreover, the proposition that mineral weight was a conscious factor in fifth century Greek thought and continuing into later periods can be demonstrated by several passages which were assembled by Leftwich in his study on the ancient conception of the body.

### **Xenophon, Memorabilia III. 6–7 (fourth century B.C.)**

Socrates' description of the stance of a contrapposto statue is the closest in date to Polykleitos and makes it absolutely clear that the role of gravity in the pose was consciously understood: "Then is it not by accurately representing with the poses of the figures *those things which draw up and pull down* in the body and compress and expand and extend and contract that you make them look more like real members and more convincing" (translation Loeb). The words I have italicized could not be a more precise definition of levity and gravity working through the muscles. This should warn us that the Greeks did not think exclusively in terms of gravity as in modern times. Did Xenophon take these words directly from the *Canon*? Compression and expansion, extension and contraction are also processual concepts relatable to the four elements model (Ills. 4–5). I should like to note here that Gertrud Kantorowicz (1992, 25) saw the significance of this passage already in the early decades of this century.

### **Philo Mechanicus IV 1, 49.20 (third century B.C.)**

Discussing factors in constructing weapons of the same size but with different performance capabilities, Philo includes weight as a matter of course and refers these factors directly to Polykleitos: "That the good is εὔ comes about *para mikron* through many numbers." Thus numbers involving weight must have been included in the εὔ. We should recall that fifth century Athenians were very conscious of and concerned with measures of weight: see, e.g., M. Lang & M. Crosby, *Weights, Measures and Tokens Athenian Agora X* (Princeton 1964). On weighing see also G.E.R. Lloyd, 1987, 247.

### **Galen Ars Medica 1.342.3 (Kuhn): second century A.D.**

In an article entitled "Nuggets: Mining the Data Again" (*AJA* 102, 1998, 273–278), Andrew Stewart has sifted through some undervalued sources and come to the conclusion that the *Canon* of Polykleitos cannot have made any allowance for artistic license in the light of that author's obsession with exactitude in "measurement, commensurability between the parts of the body, and the gauging of the Mean", as these factors are "repeatedly underscored in Galen's and Lucian's paraphrases of the *Canon*." It must, then, be pointed out that numbers by themselves cannot possibly produce anything but soulless abstractions and that this manual must have resembled instructions for pointing and copying a statue which a real sculptor with artistic license has produced. That would be the reason for the existence of the Doryphoros, which would have provided the content not communicable in written equations. Yet such an interpretation seems to me not entirely probable. It might work to describe a body in the at-attention position with the numbers alone, since the various interrelationships are (momentarily) static; but the Doryphoros is in contrapposto in which the attraction of the pose is dynamically altered relationships of muscles, flesh, weight and hence curves. It is difficult even to imagine how Polykleitos might have dealt with such factors. Despite Stewart's valiant and partly irrefutable effort to reconstruct the literary version of the famous statue, that version remains elusive and enigmatic to me.