"Mismatched Socks, Metamerism, and the Color Palette of Greek Vase Painting"
Diane Harris-Cline, CAPN annual meeting, April 1998

Selection of Literary Sources:

1. Aristotle, Meteorologica 375a22-28

"Bright dyes, too, show the effect of contrast. In woven and embroidered stuffs the appearance of colors is profoundly affected by their juxtaposition with one another (purple, for instance, appears different on white and on black wool), and also by differences of illumination. Thus embroiderers say they often make mistakes in their colors when they work by lamplight, and use the wrong ones."

2. [Aristotle] (anonymous peripatetic) **Περι Των Χρωματων On Colors 792a24-29**

"When less light strikes it, it is of that dark tint which men call grey-brown; when however the light is strong and mixed with primary black it becomes red. But when it is light and shining as well it changes to flame color."

3. Aristotle, De Sensu 440a7-13.

"Another theory is that they [colors] appear through one another, as sometimes painters produce them, when they lay a color over another more vivid one, e.g., when they want to make a thing show through water or mist; just as the sun itself appears white when seen directly, but appears red when seen through fog and smoke."

4. [Aristotle] On Colors 791a1-14.

"Those colors are simple which belong to the elements: fire, air, water and earth. For air and water are naturally white in themselves, while fire and the sun are golden. The earth is also naturally white, but seems colored because it is dyed. This becomes clear when we consider ashes... The color black belongs to the elements of things while they are undergoing a transformation of their nature. But the other colors are evidently due to mixture, when they are blended with each other. For darkness follows when light fails."

5. Aristotle, De Sensu 439b25-440a3.

"It is thus possible to believe that there are more colors than just white and black, and that their number is due to the proportion of their componants; for they may lie side by side in the ratio of three to two, or three to four, and in other proportions also, and speaking quite generally they may be in no finite numerical relation at all, but may be in asymmetrical excesss or defect, and these may act in the same way as when in harmonious proportions. Now colors that depend on calcualable numbers, as there are harmonies there, seem to be the most attractive, such as purple and red and a few others of similar kind, but only a few, because there are few simple ratios., and possibly all the other colors are not in numerical ratios..."

6. [Aristotle] On Colors 792a3-13

"These then [white and black and the color of fire] are all the simple colors. The other colors derived from these by mixture in greater or smaller proportions make many different varieties (*pollas kai poikilas poiei chromaton phantasias*). By greater and smaller proportions I mean such as red and purple, by mixture such as white and black, which when mixed give an appearance of grey. So when what is black and shady is mixed with light the result is red. For we see that, when what is black is mixed with the light of the sun and fire, the result is always red (*phoinikon*), and black things when burned always change to the color red; for smoky flame and coal, when it is burned through, are seen to have a red color."

7. [Aristotle] On Colors 793b13-27

"We do not see any of the colors pure as they really are, but all are mixed with others; or if not mixed with any other color they are mixed with rays of light or with shadows, and so they appear different and not as they are. Consequently things appear different according to whether they are seen in shadow or in sunlight, in a hard or soft light, and according to the angle at which they are seen and in accordance with other differences as well. Those which are seen in the light of the fire or the moon, and by the rays of the lamp differ by reason of the light in each case; and also by the mixture of the colors with each other; for in passing through each other they are colored; for when light falls on something, and, being tinted by it, becomes reddish or greenish, and then the reflected light falls on another color, being again mixed by it, it takes on still another mixture of color."

8. Plutarch *Moralia* 436b

Mixing produces conflict, conflict produces change, and putrefaction is a kind of change. This is why painters call a blending of colors a deflowering [*phthora*, Aristotle's term for 'passing away']. and Homer [*Iliad* 4.141] calls dyeing 'tainting': and common usage regards 'the unmixed and pure as virgin and undefiled'."

Suggestions for Further Reading:

Barnes, J., M. Schofield, R. Sorabji. 1979. Articles on Aristotle. 4. Psychology and Aesthetics, London: Duckworth.

Bérard, J. et. al., eds. 1989. A City of Images: Iconography and Society in Ancient Greece, trans. D. Lyons, Princeton: Princeton University Press.

Betz, H. D. 1986. The Greek Magical Papyri in Translation Including the Demotic Spells, Chicago and London: University of Chicago Press.

Boardman, J. 1975. Athenian Red Figure Vases, The Archaic Period, New York: Oxford University Press.

Bruno , V. 1977. Form and Colour in Greek Painting, London: Thames and Hudson.

Frede, D. 1992. "The cognitive role of *Phantasia* in Aristotle," in Essays on Aristotle's De Anima, M. Nussbaum and A. O. Rorty, eds. Oxford: Clarendon Press, 279-95.

Gage, J. 1993. Coulour and Culture: Practice and Meaning from Antiquity to Abstraction, London: Thames and Hudson.

Gentili, B. 1988. Poetry and its Public in Ancient Greece: From Homer to the Fifth Century, Baltimore: Johns Hopkins Press.

Goldhill, S. 1996. "Refracting classical vision: Changing cultures of viewing," in Brennan, T. and M. Jay, eds. Vision in Context: Classical and Contemporary Perspectives on Sight, New York and London: Routledge, 15-28.

Gordon, R. L. 1979. "The real and the imaginary: Production and religion in the Graeco-Roman world," Art History 2.1: 5-34.

Hett, W. S. Aristotle, Minor Works, London: Loeb Classical Library 1936 (for On Colors).

Janaway, C. 1995. Images of Excellence, Oxford: Oxford University Press.

Jay, M. 1994. Downcast Eyes, The Denigration of Vision in Twentieth-century French Thought, Berkeley, Los Angeles, London: University of Berkeley Press.

Jonas, H. 1966. "The nobility of sight; A study in the phenomenology of the senses," in The Phenomenon of Life: Toward a Philosophical Biology, 1st ed. New York: Dell Publishing Co.

Moravcsik, J. and P. Temko, eds. 1982. Plato on Beauty, Wisdom, and the Arts, Totowa NJ: Rowman and Allanheld.

Murray, O. ed. 1990. Sympotica: A Symposium on the Symposium, Oxford: Oxford University Press.

T. Rasmussen and N. Spivey, eds. 1991. Looking at Greek Vases, Cambridge: Cambridge University Press.

Renfrew, C. and E.B.W. Zubrow, eds. 1994. The Ancient Mind: Elements of Cognitive Archaeology, Cambridge and New York: Cambridge University Press.

Robertson, M. 1992.The Art of Vase-painting in Classical Athens, Cambridge: Cambridge University Press.

Rutkowski, B. 1979. "Griechische Kandelaber," JdI 94: 174-222.

Schnapp, A. 1988. "Why did the Greeks need images?" in J. Christiansen and T. Melander, eds. Proceedings of the 3rd Symposium, Ancient Greek and Related Pottery, Copenhagen: Carlsberg Glyptothek-Thorvaldsens Museum, 569-574.

Stewart, A. F. 1997. Art, Desire and the Body in Ancient Greece, Cambridge and New York: Cambridge University Press.

Vickers, M. 1985. "Artful crafts: the influence of of metalwork on Athenian painted pottery," JHS 105: 108-28.