



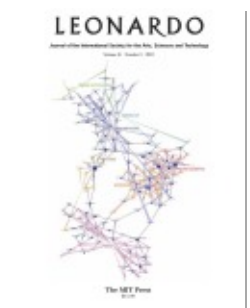
PROJECT MUSE®

Was El Greco Astigmatic?

Anstis, S. M.

Leonardo, Volume 35, Number 2, April 2002, p. 208 (Article)

Published by The MIT Press



➔ For additional information about this article

<http://muse.jhu.edu/journals/len/summary/v035/35.2anstis.html>

WAS EL GRECO ASTIGMATIC?

Stuart Anstis, Department of Psychology, University of California at San Diego, La Jolla, CA 92093-0109, U.S.A. E-mail: <sanstis@ucsd.edu>.

Received 14 September 2000. Accepted for publication by Roger F. Malina.

Why did El Greco (1541–1614) paint such elongated human figures? It has been suggested that he suffered from astigmatism. This is an optical defect of the frontal surface of the eyeball, which if over-corrected by a spectacle lens, could have optically stretched his retinal images horizontally, causing him to paint tall, thin objects that looked normal to him. A horizontal optical stretch would have restored his elongated portraits to normal proportions. Similarly, Holbein's (1497–1543) squat, broad portraits might be attributed to a vertical astigmatism.

A logical objection is that an astigmatic defect would stretch the sitter and the portrait horizontally by the same amount, so that the two distortions would cancel each other out. El Greco should thus have produced geometrically accurate portraits. There are also historical objections: El Greco sketched his figures on canvas in pencil in normal proportions and elongated them only when he painted them over; and he painted angels taller and thinner than mortals, suggesting a deliberate mannerism.

Instead of relying on logic or history, I converted normally sighted observers into "artificial El Grecos" using a specially constructed cylindrical-lens telescope to stretch their visual images horizontally by 30%. Five subjects looked through this telescope in turn, with the other eye patched. Upon attempting to draw a freehand square from memory, they drew a tall, thin rectangle elongated vertically by 35%. When they were shown an actual square and asked to copy it, they drew a

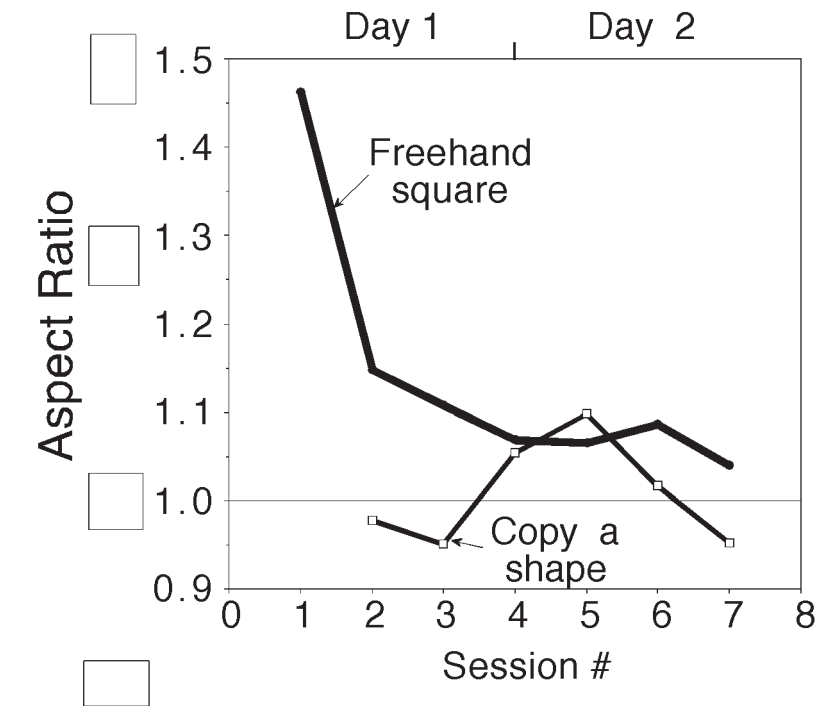


Fig. 1. When a normal observer wore a horizontally magnifying telescope for 2 days, her copies of a square (lower curve) fluctuated around a perfect reproduction. Her freehand squares (upper curve) were initially 50% too tall, but they rapidly became squarer and after 2 days appeared as though she were not wearing the telescope. Conclusion: Even if El Greco experienced any astigmatic distortion he would have rapidly adapted to it. (© Stuart Anstis)

perfect, square copy—although both original and copy looked like squat, wide rectangles to them. So freehand portraits "from memory" showed an El Greco effect, but copy portraits "from life" did not. I conclude that subjects drew freehand shapes that appeared as square retinal images and drew simple facsimiles when asked to copy a shape.

Logically, then, El Greco *could* have painted accurate life studies and distorted portraits from memory. To simulate El Greco's supposed lifelong astigmatism, a volunteer was persuaded to wear the El Greco telescope over one eye for 2 days, with her other eye covered. At night she was blindfolded. Four times a day, she drew both a copy of a square and also a freehand square. Her

copied squares were perfectly square. On the first day, her freehand squares were 50% too tall, but they became squarer every day because she rapidly adapted to the optical distortion, and after two days she drew as though she had normal vision (see Fig. 1). I conclude that even if El Greco were astigmatic, he would have adapted to it, and his figures, whether drawn from memory or from life, would have had normal proportions. His elongations were an artistic expression, not a visual symptom.

Bibliography

Trevor-Roper, P.D. *The World through Blunted Sight*, 2nd Ed. (London: Thames & Hudson, 1988).

Linksz, A. *An Ophthalmologist Looks at Art* (San Francisco: Smith-Kettlewell, 1980).