

Glass Myths

Edgar D. Zanotto

Vitreous Materials laboratory - LaMaV Department of Materials Engineering Federal University
of São Carlos

Rod. Washington Luiz- Km. 235
13.565-905
Sao Carlos- SP
BRAZIL

dedz@power.ufscar.br

Abstract

In this talk I review and discuss, in light of experimental evidence and theories, two well-known histories about glass: the possible (slow) flow of medieval stained glass, and coloured sacred images that miraculously appear on some contemporary windows. Reportedly some stained glass windows from 12th century cathedrals are thicker at the bottom than at the top, suggesting that glass is a liquid which flows (albeit slowly) downward under the force of gravity (see video show). When I first heard about sagging medieval windows, I thought it was just a Brazilian myth. But then I heard the same tale from colleagues in Chile, and found echoes of it the Encyclopaedia Britannica and even in engineering textbooks. Although window glass isn't supposed to flow at room temperature, old glass has many impurities that might help it ooze. So I looked up the chemical compositions of some 300 medieval glasses and calculated (extrapolated) typical viscosities at room temperature. With the help of P.K. Gupta we then determined the time scale necessary for window glass to flow. Since July 2002, an image on a old window has been mobilising thousands of people in Ferraz de Vasconcelos, on the outskirts of São Paulo city, Brazil (see video show). It is a face that is reminiscent of the Virgin Mary, the mother of Jesus. After countless television reports, similar effigies started to be noticed in homes from several other cities in Brazil. There has been also a report of a similar image in Clearwater, FL, USA. To attend a request from the Vatican to check up a possible miracle, we demonstrated that these images are the result of natural phenomena. Finally, I will show a video and demonstrate and discuss a third "surprise" glass myth.