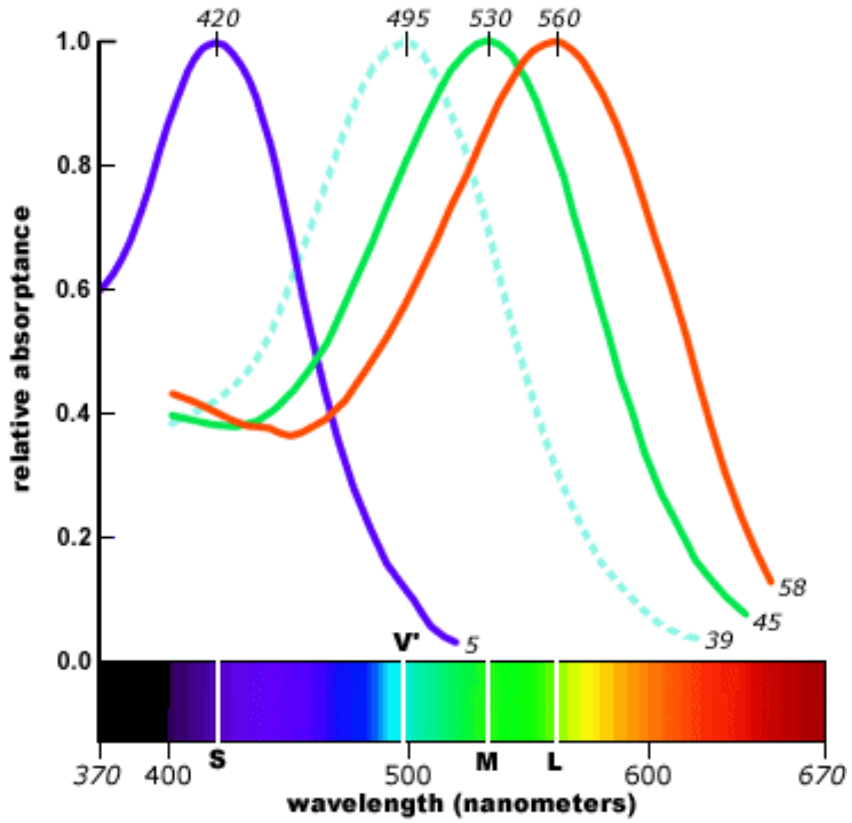
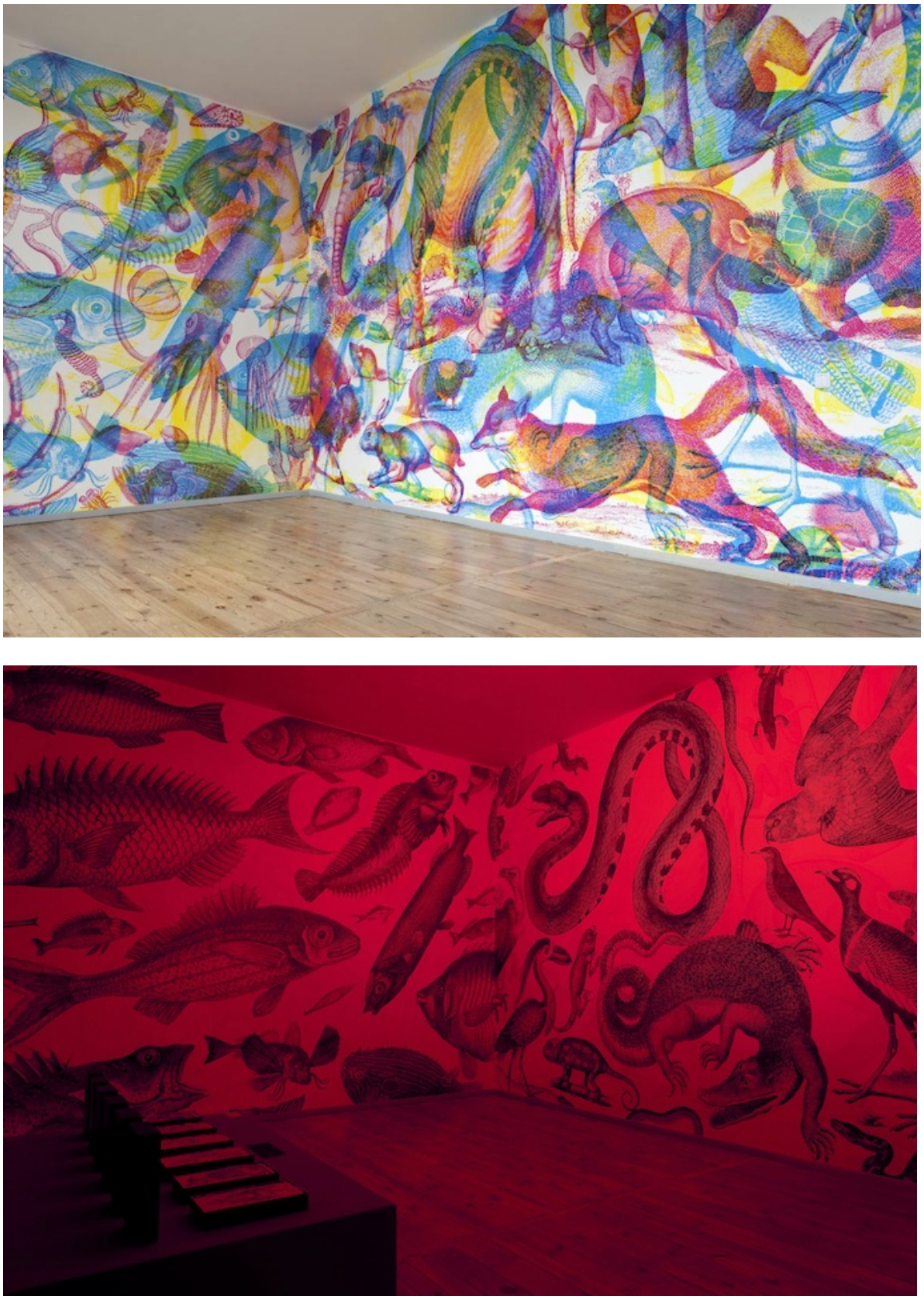


Figure 1. Absorption spectra of the three human cones, S, M & L, plus the rods (dotted blue line).



Figures 2 (a) and (b). Figure 2a shows the RGB wallpaper, with figures rendered in the standard three colours of printer's ink, magenta, cyan and yellow. Figure 2b shows the same walls illuminated by narrow-band red light. For further photographs, see http://www/carnovsky.com.





Figures 3 (a) and (b). Figure 3a shows the RGB wallpaper illuminated by narrow-band green light. Note the high visibility of the red figures (which appear black) and the low visibility of the yellow figures (which appear yellow) and blue figures (which appear gray). In Figure 3(b), the narrow-band blue light highlights the yellow figures, such as the cockroach, which now appear black.

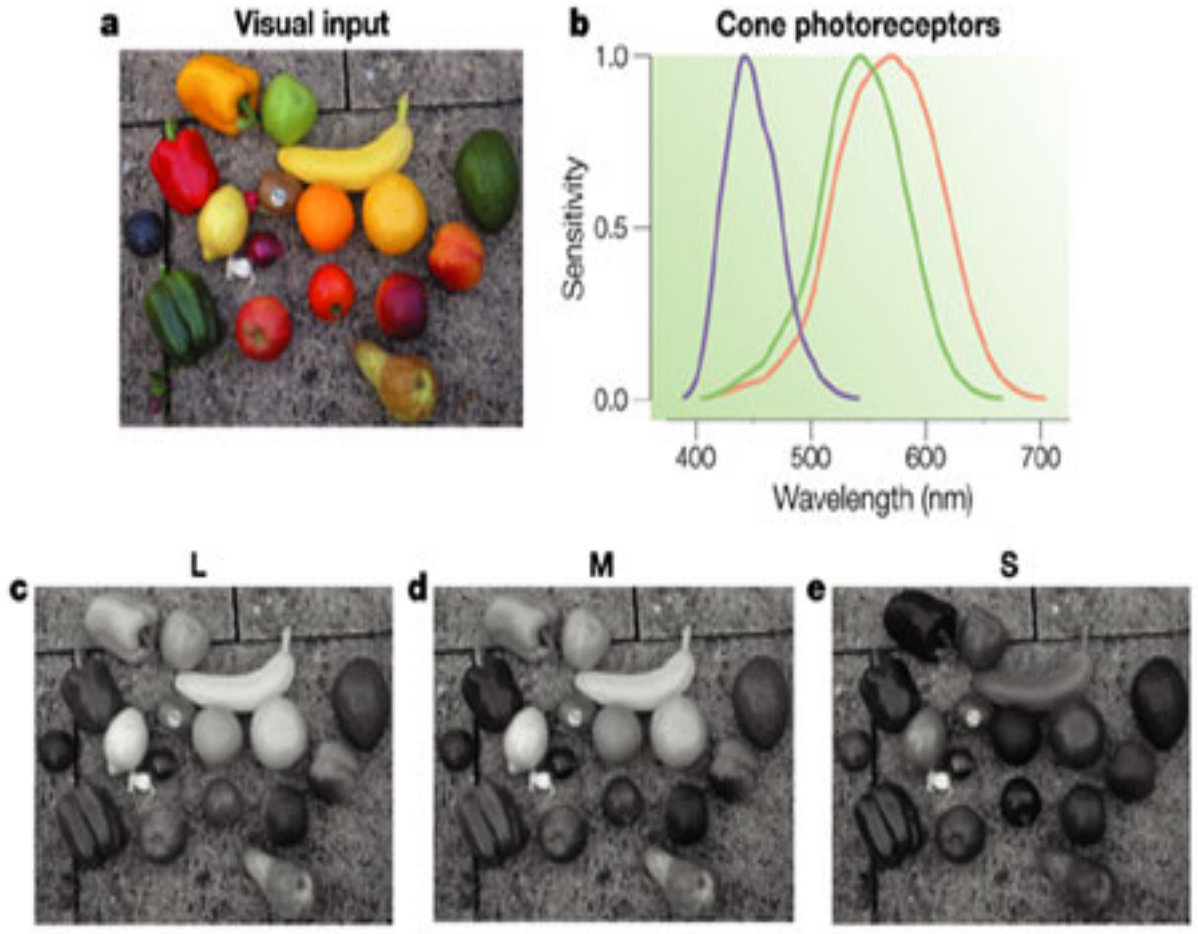


Figure 4. Figures (c), (d) and (e) illustrate how the spectral filtering of the three cones (L, M and S respectively) would effect the luminance of measures of the scene presented at the top left, a colour photograph of common fruits and vegetables (Gegenfurtner, 2003).



Figure 5. These photographs illustrate the separation of a single image (full colour, top middle) into two contributing components of light to the image, the Luminance Image and the Spectral Image.

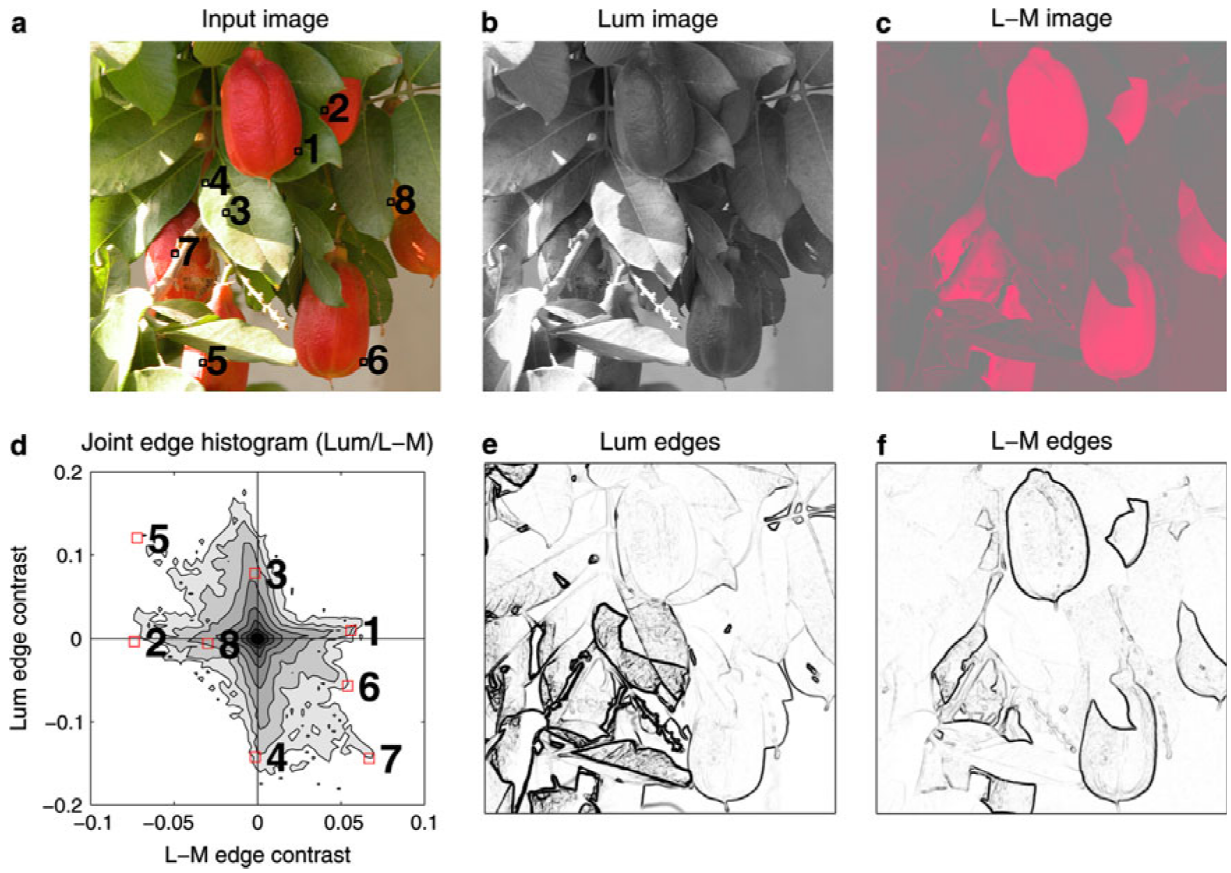


Figure 6. (a.) Original colour or 'input' image. (b.) Luminance Image or photon catch of the S, M, and L cones (c.) Red-Green image of the response of the L-M channel. E. Edges derived from the Luminance Image in (a). (d). Edges derived from the luminance image in c. From Thorsten & Gegenfurtner 2009.



Figure 7. A monochrome image of the RGB wallpaper.. Note that the three inks used to render each of the colours, cyan, magenta and yellow, appear roughly equiluminant to the average trichromatic observer. That is, the intensity of the pigments is roughly equal.

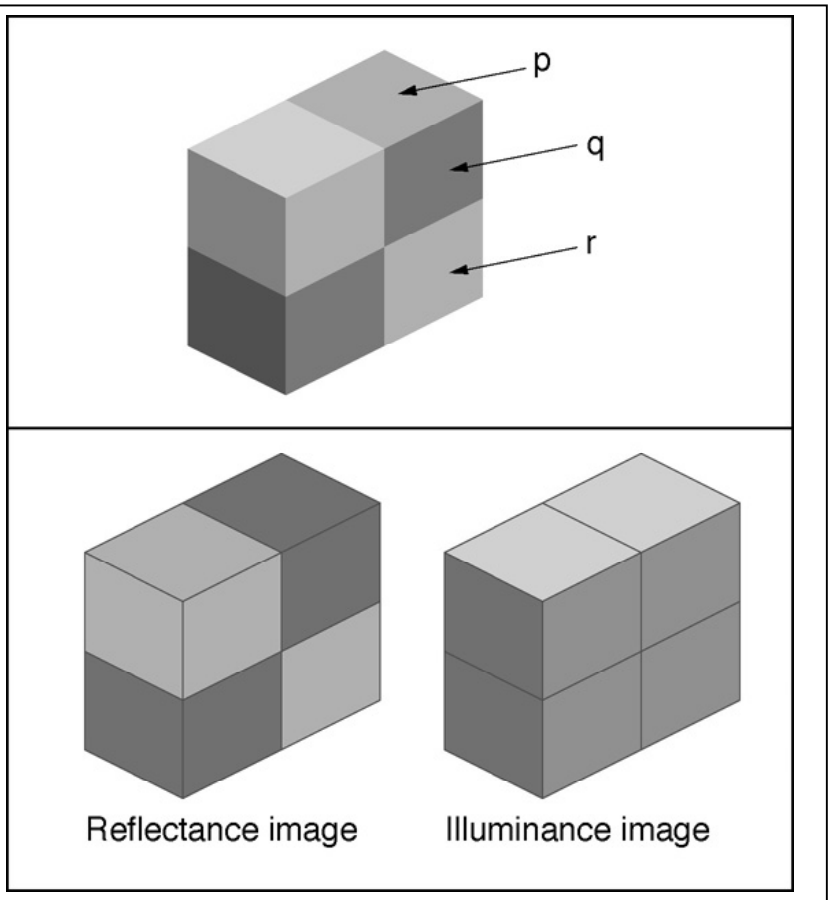


Figure 8. On the standard interpretation, the problem of albedo is the problem of disambiguating the Surface Reflectance Image (lower left) from the Illuminance Image (lower right), given the Luminance Image (upper cube). From Adelson.



Figure 9. Some of the non-homogeneous effects of illumination are illustrated in this monochrome photograph. Note the multiple light sources, the specular reflection of the light off of the water in the canal and in the plaza (the white glints), and the fog in the background, which must be seen as such in order to perceive albedo.