

Lighting and the Palomar Observatory by John Garrett, from The Californian.

When two cars approach at night, the drivers switch to low beams. This courtesy persists despite individual lapses and gives me hope that our community can adopt similar habits that are courteous, improve safety, and protect our night sky. The recent announcement of a Kuiper belt object larger than Pluto and discovered at Palomar Observatory shows that our local observatory remains on the forefront of science and is worth protecting. Whether the observatory will continue its research amid our region's growth depends on the willingness of homeowners, businesses and institutions to limit wasted light.

Wasted light comes from unaimed fixtures that spill light upwards and outwards. Lights of good design hit only the target - one's own property - rather than the neighbor's property, the street, and the sky.

The lighting of many homes and businesses fails the courtesy test. If a neighbor's light falls on your bedroom window you must take extra steps to block it. Should you need to look outside to see if a sound is a cat or a prowler, you receive a face full of glare. Many lights use bright white light dispersed by a cylinder-shaped lens. These lights send at least 30% of their light upward where it is wasted and brightens the sky instead. Another 10% shines outward where it creates glare, a hazard for motorists and for those likely to be hit by them. Some businesses have bright, white light lamps that shine outward. The light source of these lights can be seen a mile away. What is the business objective in illuminating everything in this distance? It only undermines the work at our observatory.

Choosing effective safety and security lighting is like aiming a flashlight. A flashlight embeds a bulb within a reflective shield so all of the light is used and aimed onto the target area. Do you shine the flashlight downward on the ground, or in your face, in your neighbor's face, and in the face of the driver trying to avoid hitting your children? Shielding makes any light more courteous, more effective, more efficient and Palomar friendly.

In addition to aiming light, using low-pressure sodium lights (LPS) where you do not need white light is 100% Palomar friendly. LPS provides poor color rendition, but is energy efficient, and the human eye can see well under the wavelengths it produces; it doesn't overwhelm one's night vision, which in many lighting tasks is more important than good color rendition. Mixing 80% LPS with 20% white light also provides good color rendition and is a good strategy for businesses that traditionally use all white light or who wish to illuminate flags.

Careful design of night lighting is courteous to neighbors, reduces safety hazards, and saves energy, while having the side effect of preserving the night sky for our own enjoyment.

Palomar Observatory is an American institution with a rich history of scientific discoveries. It deserves our pride and protection. Our observatory, as well as our neighbors, deserve our low beams.