Light as dark matter (**© 19/12/15)**

Theory considers light as having a dual personality – as electromagnetic waves – and as particles (photons). If light beams are particles (Newtonian corpuscular theory in “Opticks”), photons must have mass, albeit infinitesimal. If sound transmission occurs as waves of particles (molecules), why can’t light transmission occur similarly as waves of photons? Even water waves – with which one compares electromagnetic waves – are made up of molecular “particles.”

Two examples suggesting light photons might have mass are:

1) Light is bent towards a heavy mass (a star) as it passes near its gravitational pull.
2) Light causes photometer vanes to rotate. When a photon is reflected (ricochets) off a shiny surface only a portion of its momentum is transferred to the vane. However, on striking the dark side, it transfers all of its kinetic energy to the vane, causing the vane to gain more velocity from the dark side than from the shiny side. Tiny photons’ momentum comes from extreme velocity.

Problematic for the corpuscular light theory is polarization. Polarization might be possible if each photon were oscillating in all planes about its center. Polarization might force the oscillations to be limited only to the plane of polarization, creating a discoid photon. When polarized photons oscillating in a discoid plane, are subjected to a polarizing filter perpendicular to its plane, the light beam would be blocked. (This would be like trying to put a disc-shaped steel plate vertically into a horizontal slot).

Stars emit massive amounts of light energy. Corpuscular light from every visible star must pass through every viewing point in space. Thus, space is replete with immense numbers of photons.

Paradoxically, if photons have mass, light might be part of dark matter. The dark matter argument extends to known mass-bearing components of cosmic rays.