

REFLECTIONS

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Reflections: Driving



Distracting light reflections are undesirable especially under driving conditions during the darker seasons. Increasingly powerful dazzling headlights and Daytime Running Lights (DRL) can cause a chaotic and dangerous scenario. Isotropic light i.e. light radiating uniformly in all directions from unfocussed DRL combine to generate an extremely annoying haze.

Photons beam in all directions from over bright, glaring headlamps and DRL causing light rays to reflect from rain droplets, fog, snow, including wet road surface plus reflective road signs etc.

'Self-dazzling' is common even when using foglights and especially uncomfortable in thick fog or heavy snowfall. Under such conditions, based on the information of motoring club technologists DRL can cause more undesired glare than well adjusted headlights.

Even weak suprathreshold visual stimuli easily reach all retinal receptors via the efficient 'fiber optic' function (*Retinal Müller-Cells*). These countless light stimuli and light-reflections are processed in the higher visual pathways and centers, i.e. in the *visual short-term memory (VSTM)* and *working memory*. If stimulus-overflow exceeds processing capacity limits, functional disability occurs due to overstimulation and the increasing haze-effects of *Distraction-Glare* and *Disability-Glare*.

All these unphysiological and possibly phototoxic light 'bombardments' can induce unnoticed decompensation of visual and cognitive processes* - the "overlooked" or better *formulated - not perceived* child on a pedestrian crossing i.e., 'protected path'. Whilst this is the worst-case scenario, similar disasters must be prevented by minimising input i.e. avoidable stimuli and distracting reflections.

Apropos: The terms "*Physiological-*" and "*Psychological Glare*" are obsolete because quite misleading. Finally - amber tinted 'Night Driving Glasses' can affect cognitive judgements in dim light or night driving conditions not to mention fog, rain, snow etc. provoking 'near misses' or even worse.

Reflections: Everyday living

Even some children's toys have potentially phototoxic Hi-power LEDs (QED). Disturbing, distracting reflections and glare have also conquered interior lighting - from the infant wards to workplaces, private homes and nursing homes. Bright bluish and white light from displays on tablets, 'smart'phones and PC- monitors is radiating into sensitive and vulnerable retinae - often up into the night.

Badly executed lighting technology can create serious problems from unwanted glare and light reflections - everywhere. The recommendation for all displays namely - '*dark background combined with bright text*' - remains valid. Under this premise integrated brightness is reduced significantly - implementing lower retinal light exposure and less fatigue (office eye syndrome and the like) plus - choroidal thickness does not increase during overdose-light exposure (cave myopia!). Note: print media like books and papers with their moderately white background reflect less incident light accordingly.

Conclusions: Light in our personal sphere can be - and has to be controlled reasonably and above all the eyes must be protected.

Reflections: Climate and Albedo

The albedo reflective feedback effect takes place seasonally in all landscapes with large areas variable snow and ice cover. The spherical albedo reflectance of snow-and ice-covered areas range from 0.9 shrinking to about 0.06. Over 90 percent of the solar energy will be absorbed by the ground or dark water after melting. The '*Greenhouse Effect*' is caused by the global increase in *Greenhouse Gas Emissions* and is much stronger in the polar regions due to the dwindling cryosphere (polar amplification).

These gases, which occur naturally in the atmosphere, include carbon dioxide, methane, nitrogen oxide, and fluorinated gases, known as chlorofluorocarbons (CFCs). Previous average temperature of our planet was 15°C, due to the *Natural Greenhouse Effect*. The world has been warned since 1988. Meteorological Organizations and the United Nations International Panel on Climate Change seem to be preaching deaf ears - albeit.

Conclusions: Light reflections increase. 'Greenhouse gases' collect in Earth's atmosphere. Temperature and sea level rises.

Re-flectere (Lat): bend back, turn, shine, reflect, also: thinking, being in, turning back inside.

* Inattentional Blindness - aptly term: ***Distraction Blindness***: absolute cognitive failure. The image of the child e.g. can be wiped out in our cognitive processing, i. e. completely extinguished, erased - but unnoticed. Highly concentrated drivers approach a seemingly empty zebra crossing.

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