10 Cutting out glare

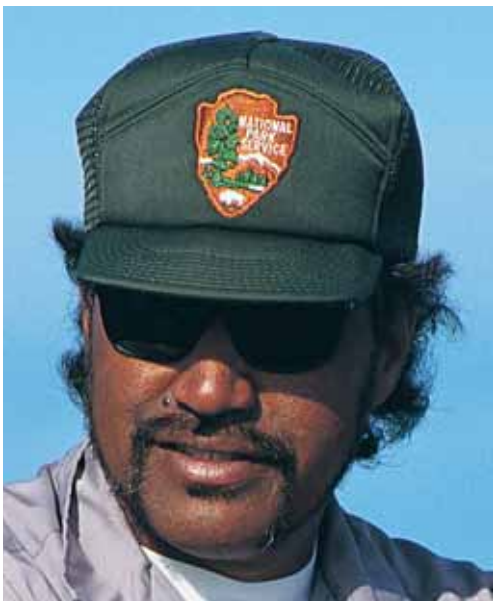
Ordinary sunglasses cut down the light, but polaroid sunglasses also cut out glare.

▲ **(Picture 1) Glare is a particular problem with mirror-like surfaces such as water, windows or the metalwork of cars.**

Ordinary sunglasses are made of material which partly blocks out the light. This is done by coating the surface of the glasses with a thin film of dark-coloured material or adding dark colouring to the plastic as it is made. As a result, everything is made darker.

Polarising glasses

Even when you have sunglasses on, a bright light reflecting from metal, glass or water can give an unpleasant **GLARE** (Pictures 1 and 2).



◀ **(Picture 2) Glare is a common experience and to cope with it people wear sunglasses.**

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▲▼ **(Picture 3) By cutting out reflection, polarising filters allow you to see through the glare, for example to see the stems of these lilies or perhaps fish gliding through the water.**

This is because these surfaces behave like mirrors and send the light directly to your eye. All other surfaces are rough and scatter the light, so less of it reaches your eye. This contrast is what we mean by glare.

Polarising sunglasses are made of a special material that cuts out some of the rays of reflected light, but lets others through unaltered. As a result, very bright, glaring, reflecting subjects produce less glare while everything else is left undimmed.

Polarising filters

Cameras can be fitted with special filters that cut out much of the glare. These are called polarising filters.

To understand how these work, think of dropping a stone into a pond and watching the ripples spread out. This pattern of ripples (waves) is how light spreads out. The difference is that we cannot see light waves.

A polarising filter is designed to cut out waves coming in the direction that causes glare. If you hold a filter to a glaring subject, such as a light being reflected from a pond, then turn the polarising filter, you will see the glare reduce as the filter cuts out some of the waves (Picture 3).

Cut out light completely

If you hold one polarising filter in front of another, and turn one of them, a point will be reached when they have cut out nearly all of the light and you see almost nothing.

Summary

- **When we look at mirror-like surfaces, light causes a glare.**
- **Sunglasses dim the glare but make everything else dark as well.**
- **Polarising filters cut out unwanted reflections.**