

## Optics is Everywhere – A Story

Most people know that optics has to do with light and lenses, and you probably know that cameras and binoculars are optical devices. But optics is also important in many every day situations, as the following fictional "day in the life" demonstrates. *Italicized comments indicate a critical role for optics in this product or situation.*



Paul was still enjoying the morning paper when he looked up at the clock and noticed he was running a little late (*his no-line bifocals made it easy to refocus his eyes from his reading to the clock and back*).

There were some new photos from the Hubble Space Telescope in the paper – amazing detail from a galaxy so far out in



space (*the HST uses a variety of optics to capture pictures and other data*).

Glancing outside, he noticed storm clouds moving in (*satellite photos last night on TV had captured the remnants Hurricane Davy moving in*) – better take an umbrella this morning. The drive to work was uneventful, though he was

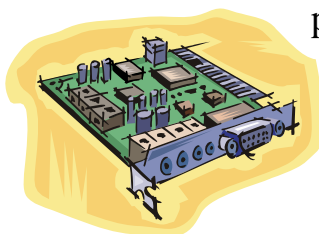
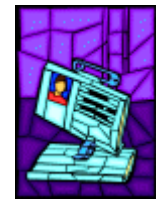


surprised to see that the same stretch of Route 27 was still under construction, and very bumpy (*he noticed that the tracking system in his car's CD player didn't mind the*

*bumps at all – clever engineering, he thought*).

When he parked the car, it was just starting to rain, so Paul sprinted to the door, thankful that his knee felt so much better now (*amazing how fast these things can heal after arthroscopic surgery*).

Because of the special project he was working on, security was a little tighter than normal at the office (*he waved his badge in front of the laser scanner to open the access door*). Time to check email – Paul sat down in front of his new PC. He was still amazed that a PC could be that fast and have so much memory for a lower price than his old 486 – someone had told him that they could place millions of circuit elements on a chip now, so powerful computers could also be cheaper (*optical*



*microlithography makes it possible to fabricate chips with such tiny features*). Paul went over to pick up hard copies of a few of his mail messages from the color laser printer –

not quite the paperless office, but the high resolution output sure looks great (*lasers and lenses make it possible to print such razor-sharp images*). He also finished an expense report and stopped to make a copy for his files (*the zoom lens and optical sensors in the "smart" photocopier allow it to choose the proper paper size and exposure for perfect copies every time*).



After lunch, Paul had to attend a marketing presentation – the content was nothing special, but the graphics were great, and the *PC video projector* sure created bright, sharp images even with the room lights on – those things have really improved a lot in recent years! Paul's wife called him after the meeting – one of her friends had just had *laser surgery to correct her vision* – his wife also liked the idea of good vision without glasses or contacts, so they planned to research the procedure (how many uses are there for lasers? – a lot I guess). Paul got a few more calls, including one from a client who wanted to see some design sketches he was working on – Paul faxed her a copy (*the fax machine is yet another example of an optical scanner*).



It was dark when Paul headed home for dinner. Driving on the narrow access road from his office, he noticed how well the *headlights of this new car* seemed to illuminate the road in front of him without blinding other drivers with glare – nice design. He noticed that the car's interior lights were also somehow different – the dashboard instruments were so easy to read, and the map light had so little glare. Optics again?



Just then the cell phone rang (*the tiny illuminated display was quite easy to read*), leading to a short detour to the supermarket for some last-minute items. Paul was not surprised when he noticed the *laser that scanned the product codes* from his milk, bread, and other items. Optics seems to be everywhere, he thought.

