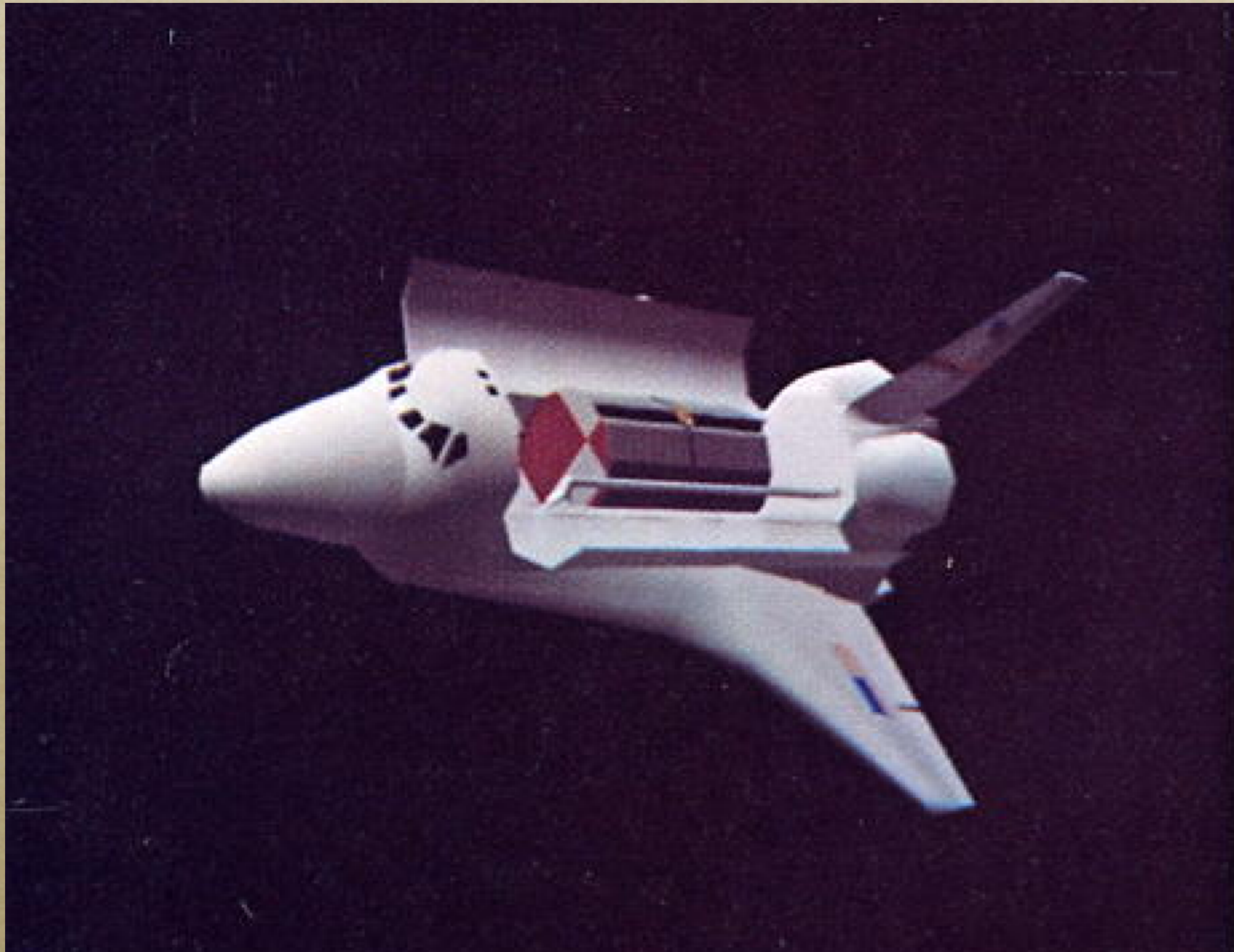
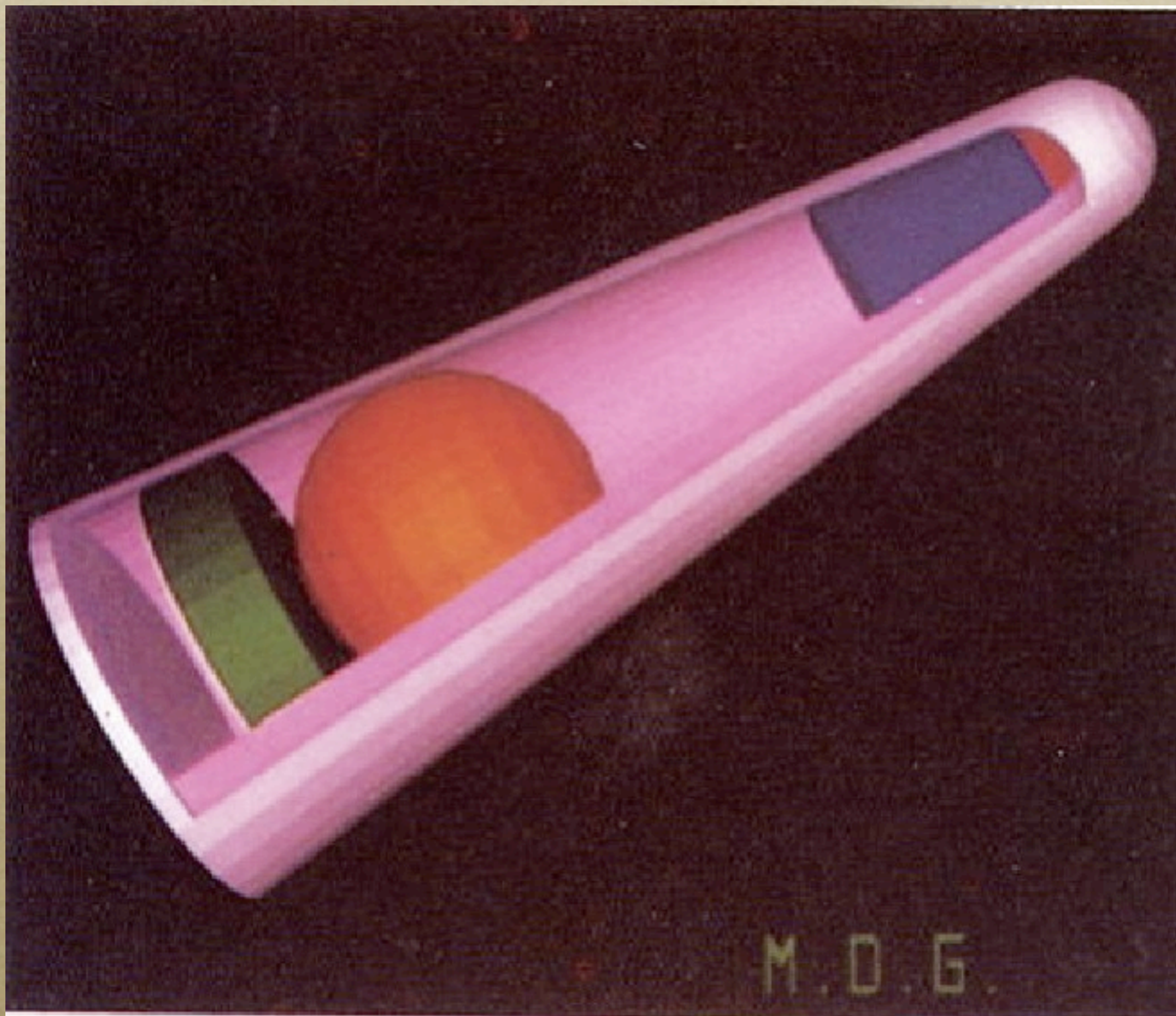


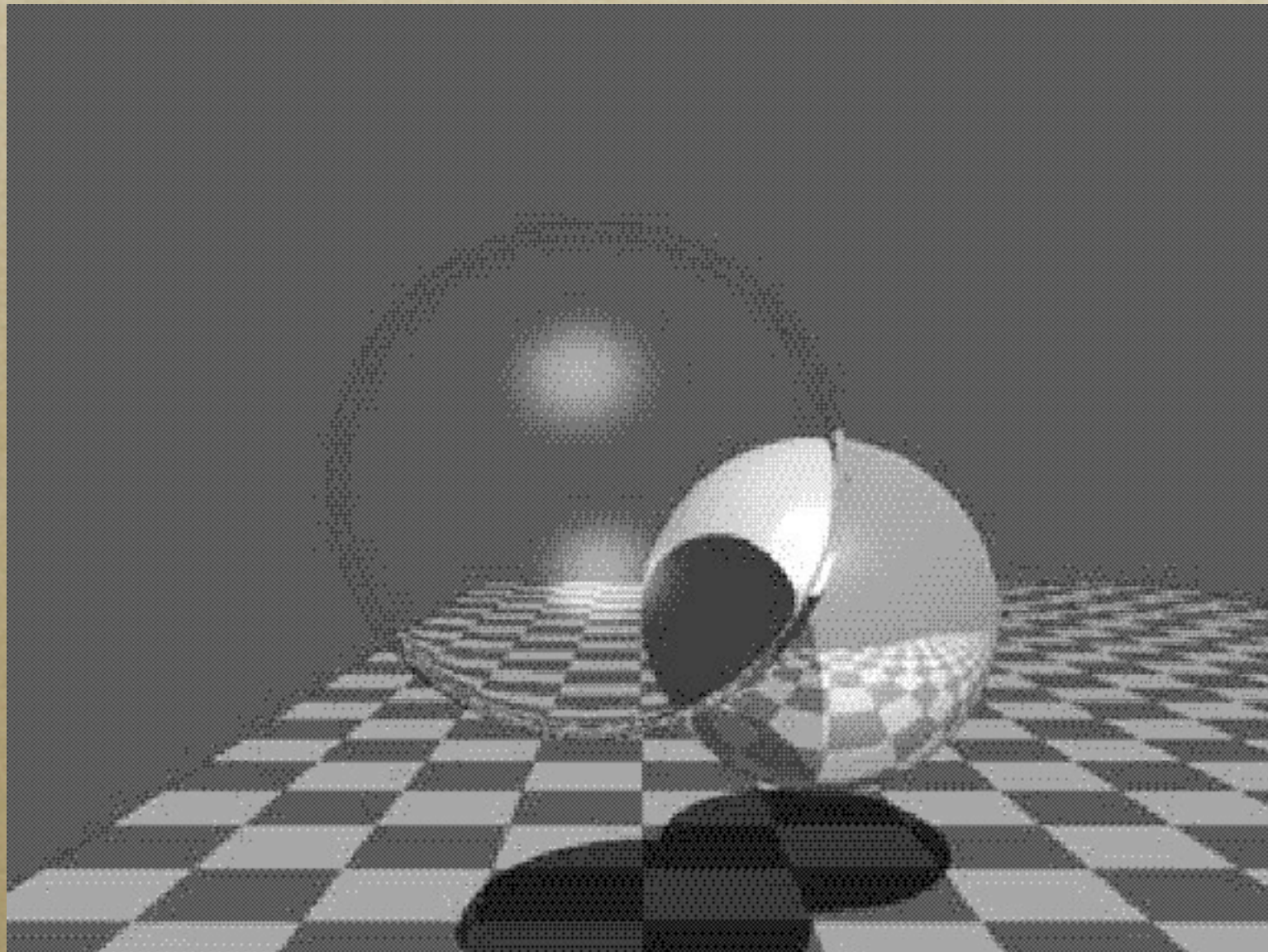
Ray Tracing

- *History*
- *Examples*
- *What are we trying to do?*
- *How do we see the world?*
- *Where does light come from?*
- *The basic process*





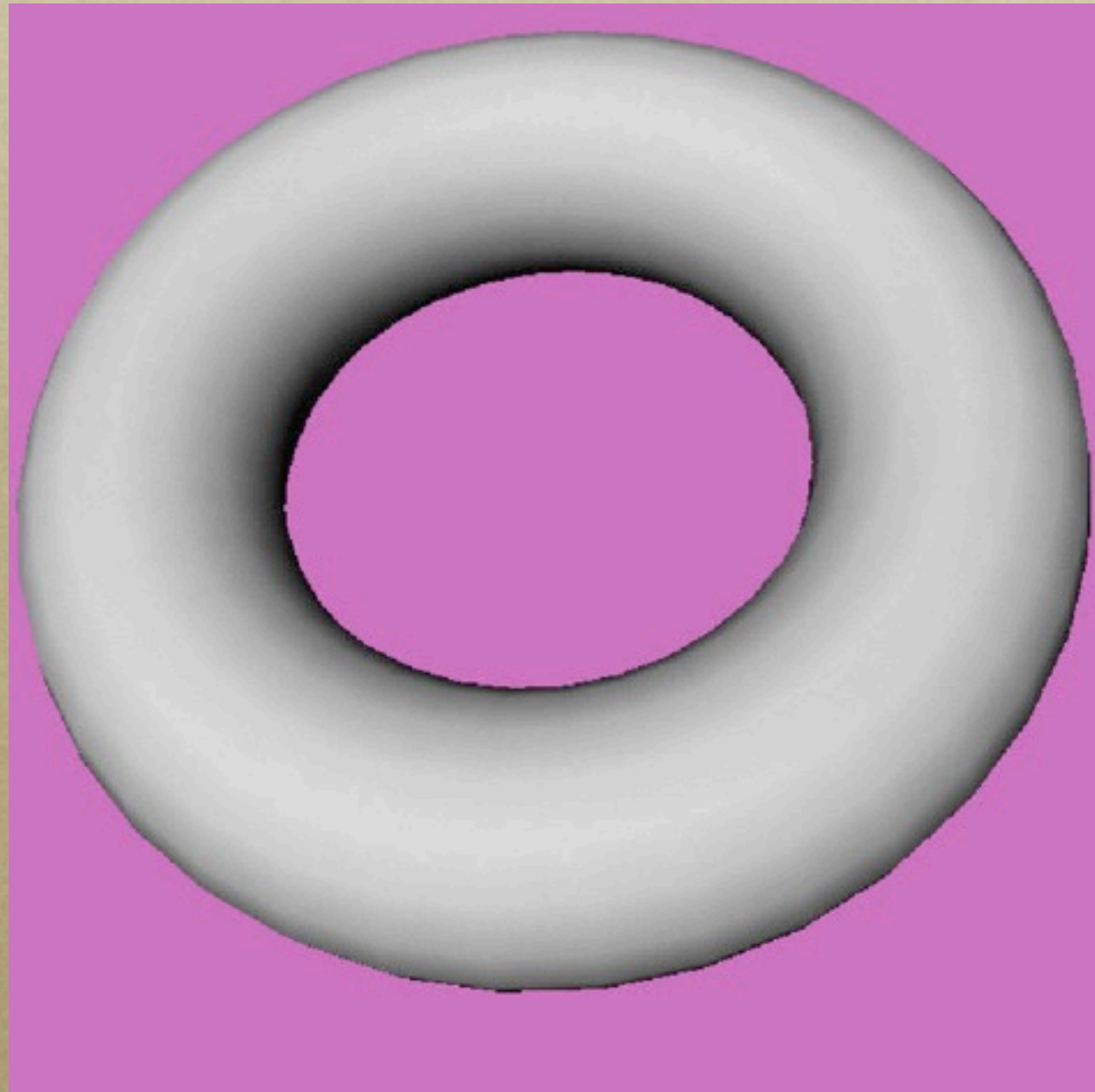
Turner Whitted 1979



Flat Shading



Smooth Shading



Some Ray Tracing Examples













by Stephen M. Farrell

Stephen M. Farrell



by Martin Moeck (Radiance)

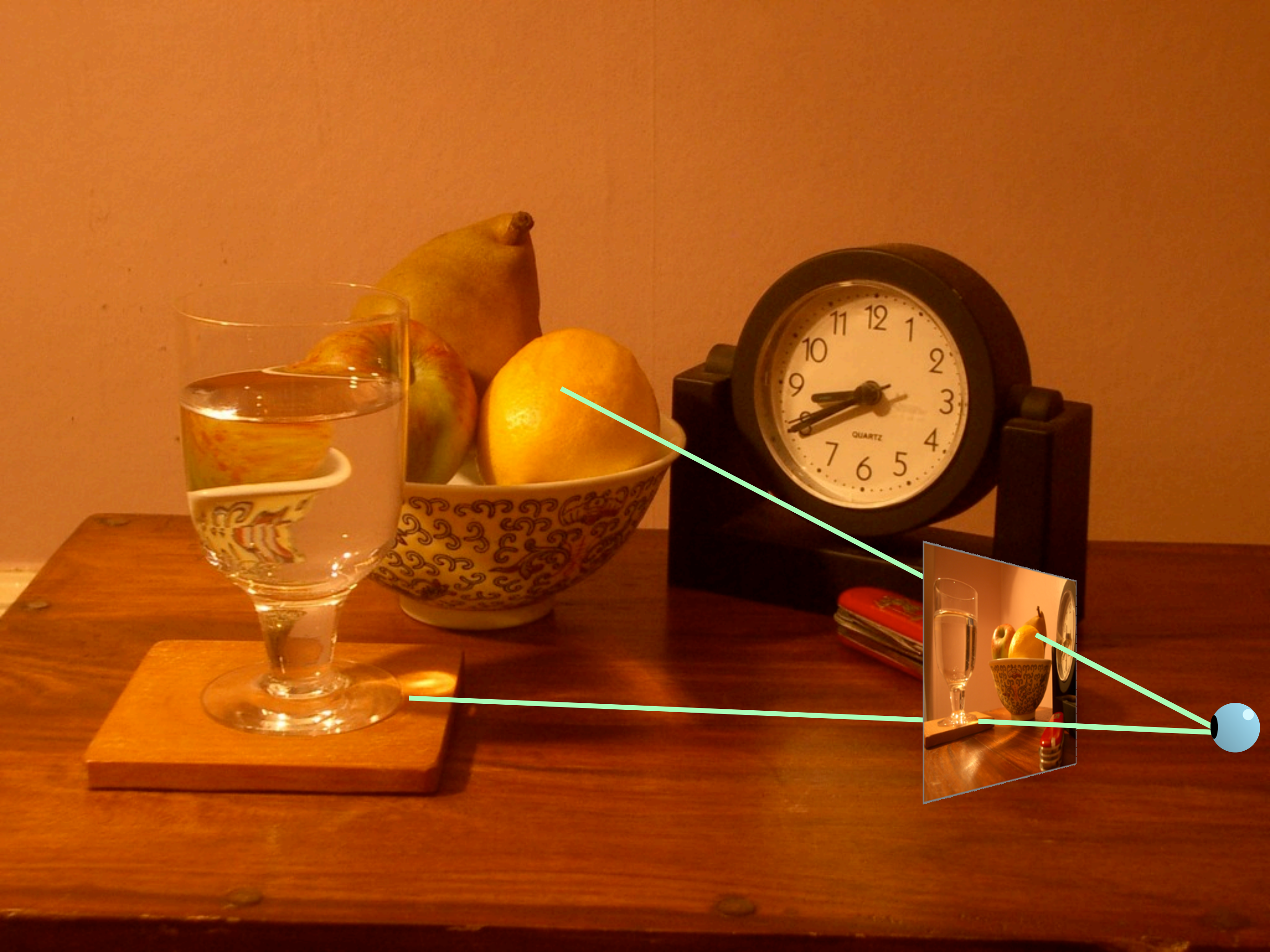
How do we see the world?

- *What is it that our eyes are sensitive to?*
- *Where does light come from?*
- *What is a light source?*
- *What can I tell about what's behind me?*
- *What are shadows?*











The Basic Process

- *Create an image plane and viewpoint.*
- *For each pixel trace a ‘ray’ from the eye through a corresponding point in the image plane.*
- *For each ray, return the colour of the object at the hit point.*

The colour?

- *To find the colour, trace rays from the hit point to determine where the illumination comes from.*

Trace more rays?

- *A recursive process*
- *How many rays to make a good picture?*
- *When do we stop recursion?*
- *Does this answer all the questions?*

To be continued...