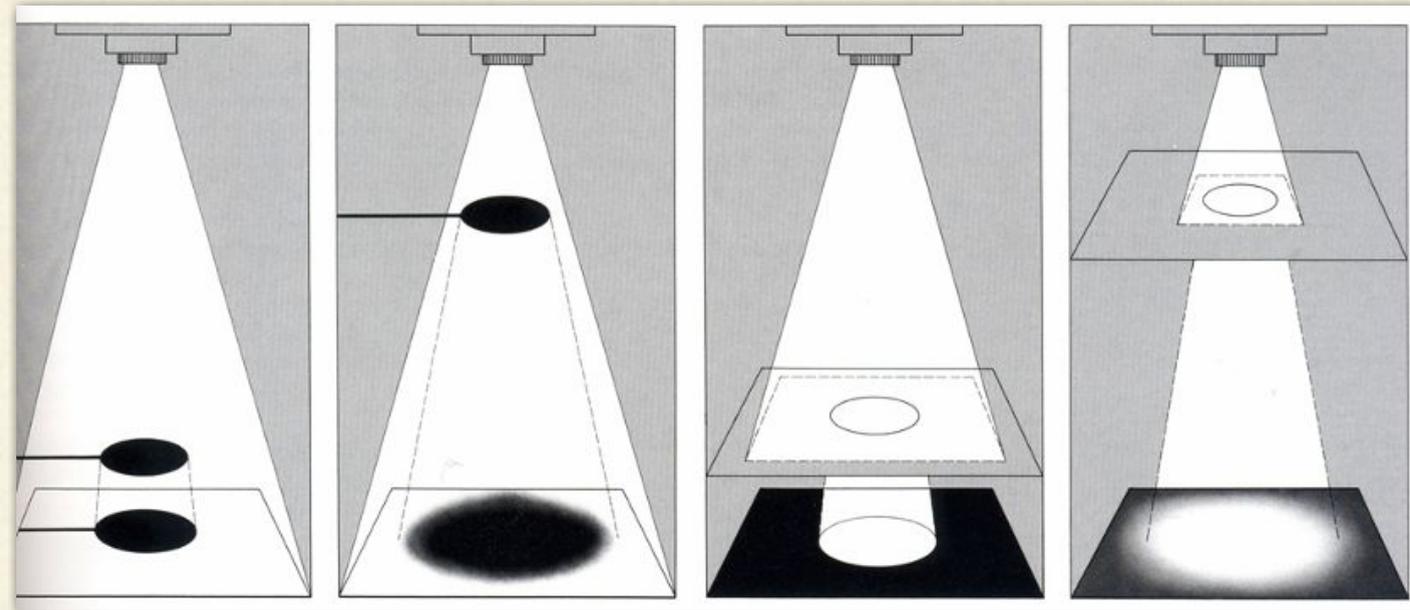# Wrapup

CS 48N, Winter 2011

Marc Levoy
Computer Science Department
Stanford University

Traditional dodging and burning
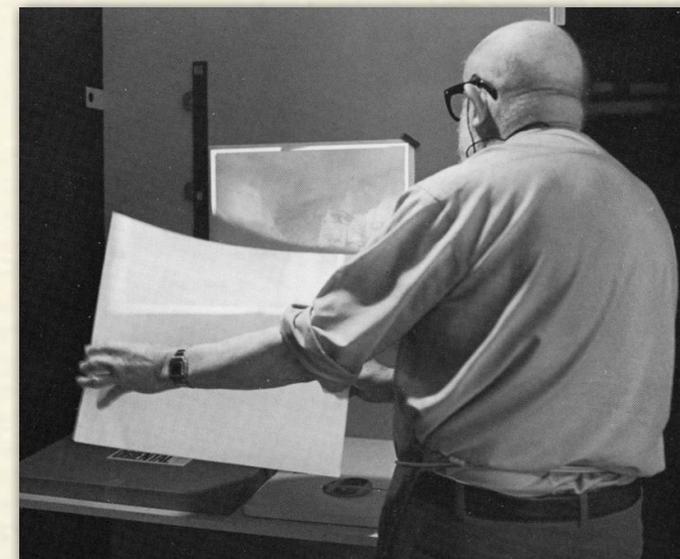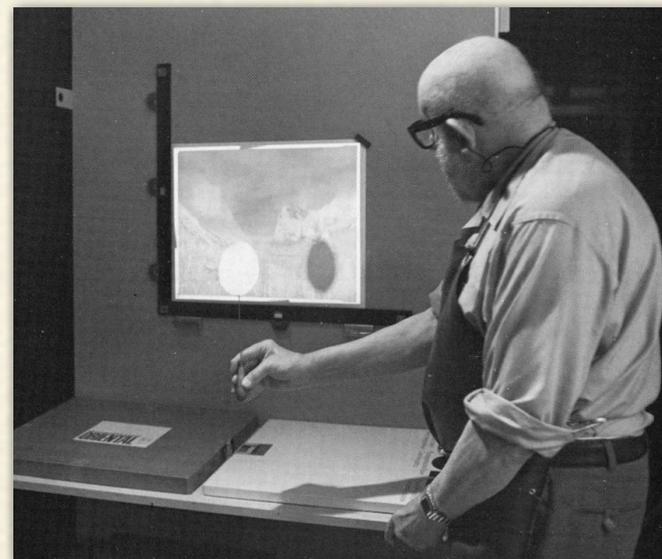

(Rudman)

dodging
(leaves print lighter)

burning
(makes print darker)

(Adams)

Ansel Adams in his darkroom

Ansel Adams, Clearing Winter Storm (1942)

Ansel Adams, Clearing Winter Storm (1942)

Nikon D3S, ISO 3200, photograph by Michael Kass

Nikon D3S, ISO 6400, photograph by Michael Kass

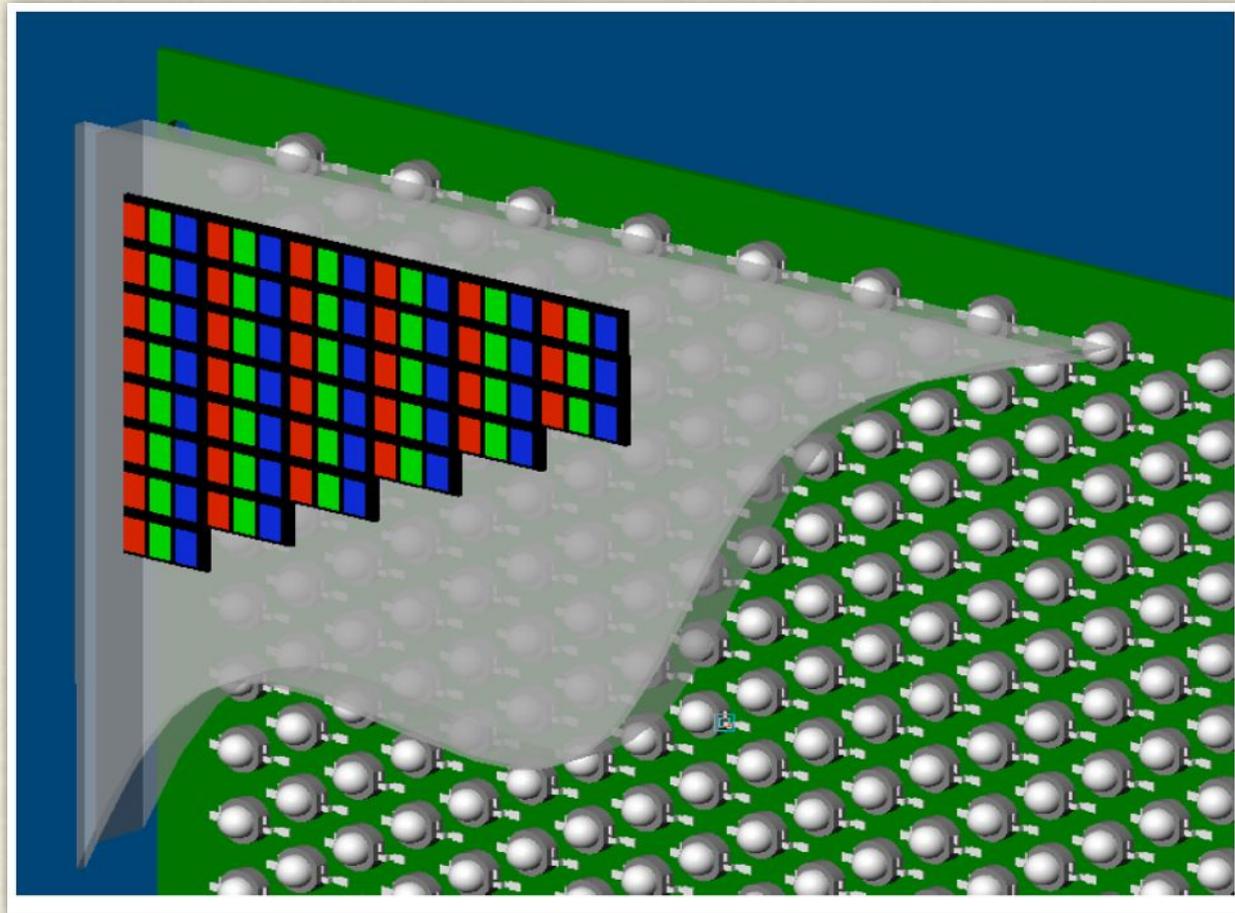Nikon D3S, ISO 25,600, denoised in Lightroom 3, photograph by Fredo Durand

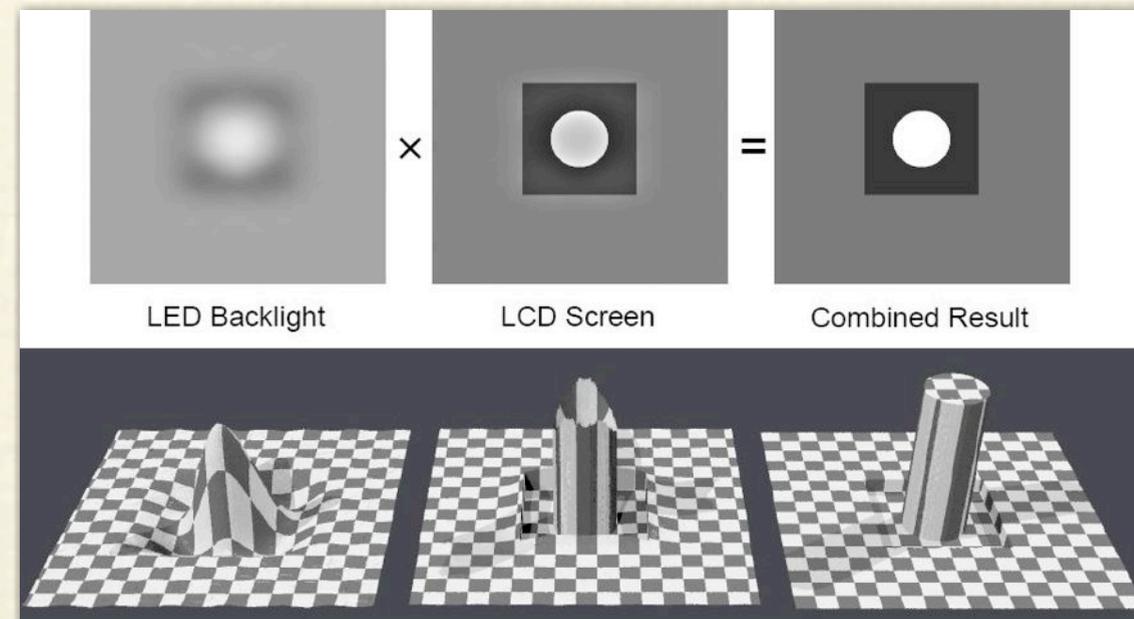Fredo says it was nearly too dark to read the menu, so it really looked like this (darkened)

or maybe it looked like this? (tone mapped to approximate human dark adaptation)

Direct display of HDR images

BrightSide HDR display

Low-res B&W backlight   High-res color foreground

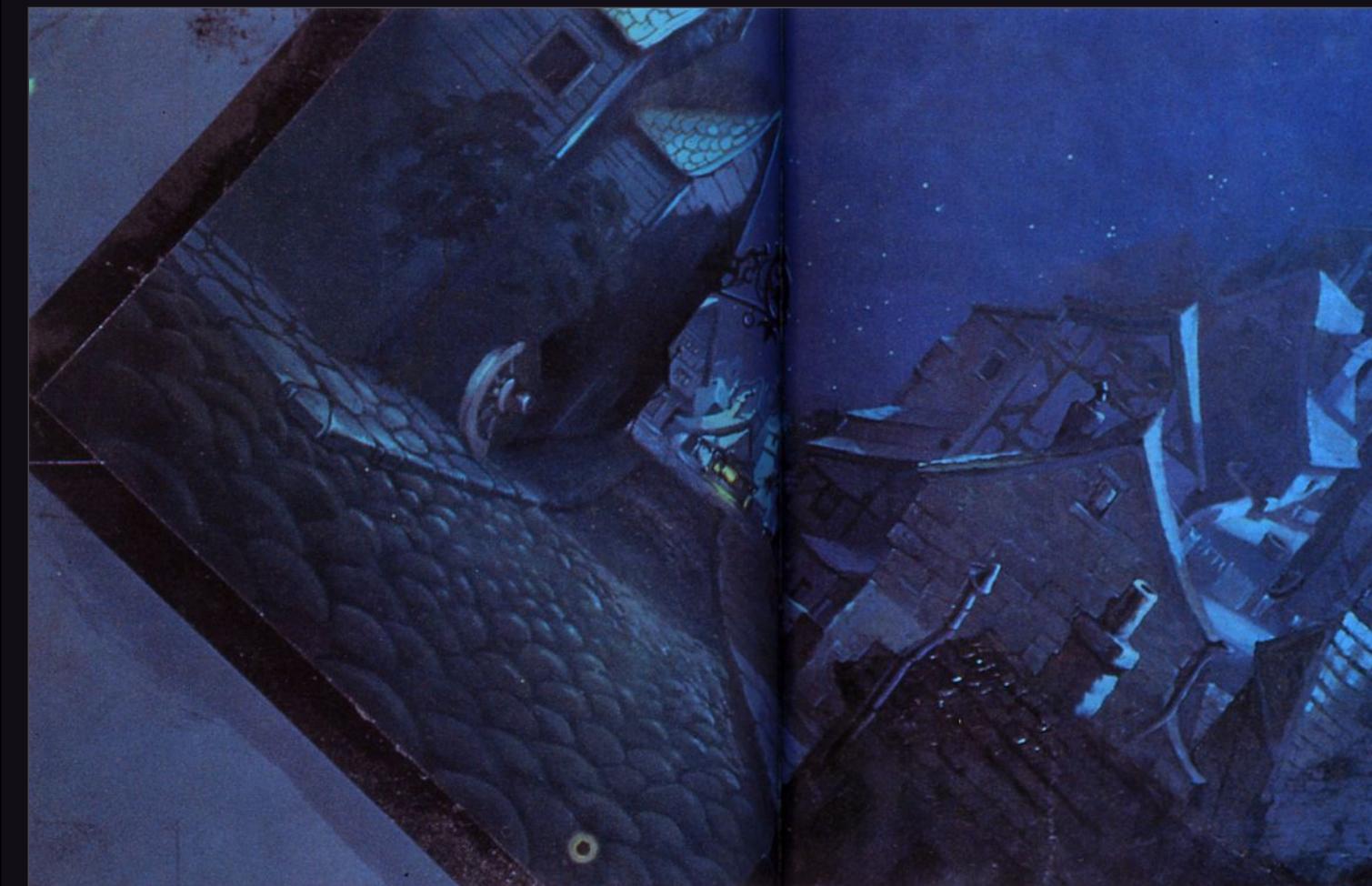LED Backlight   LCD Screen   Combined Result
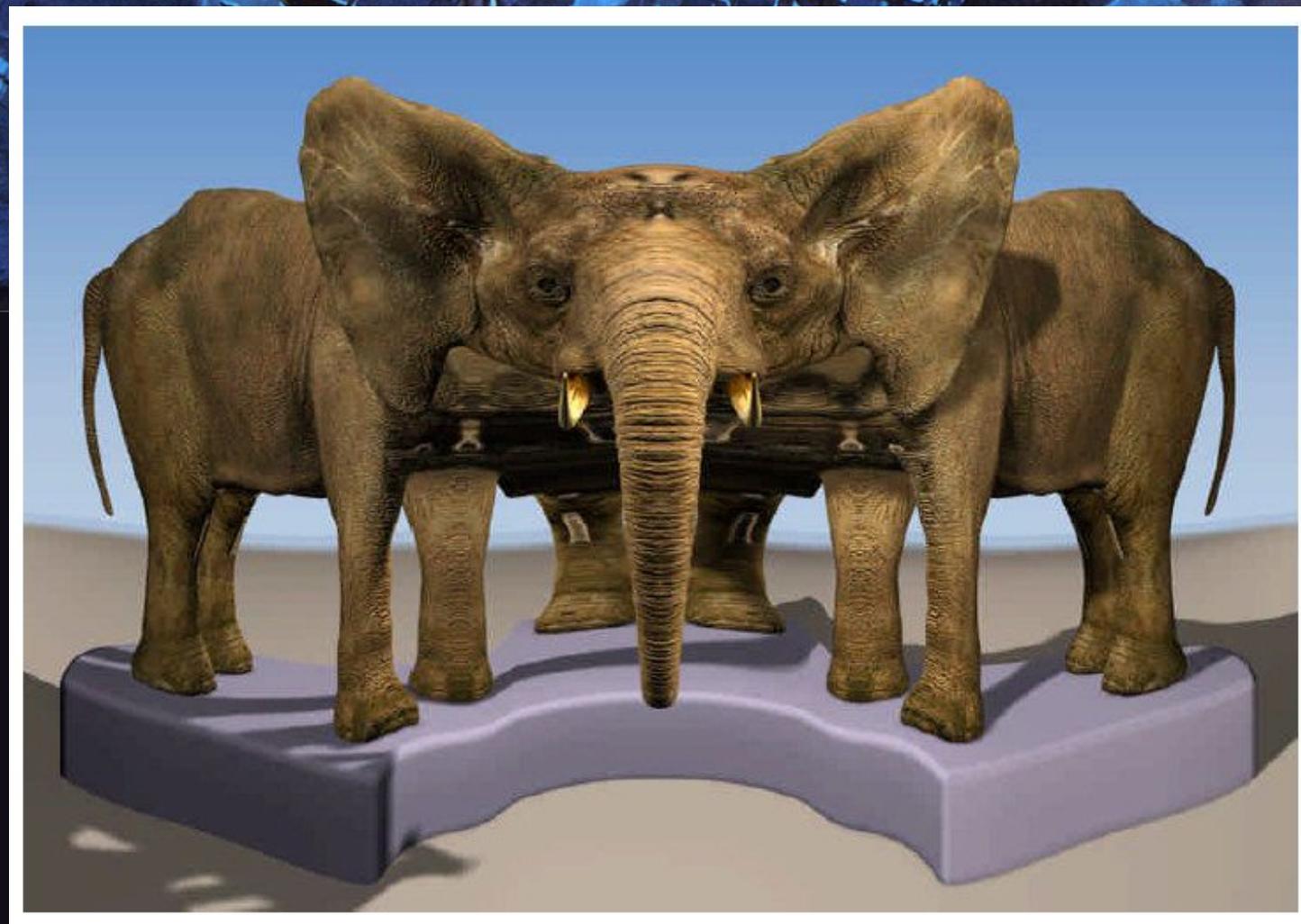
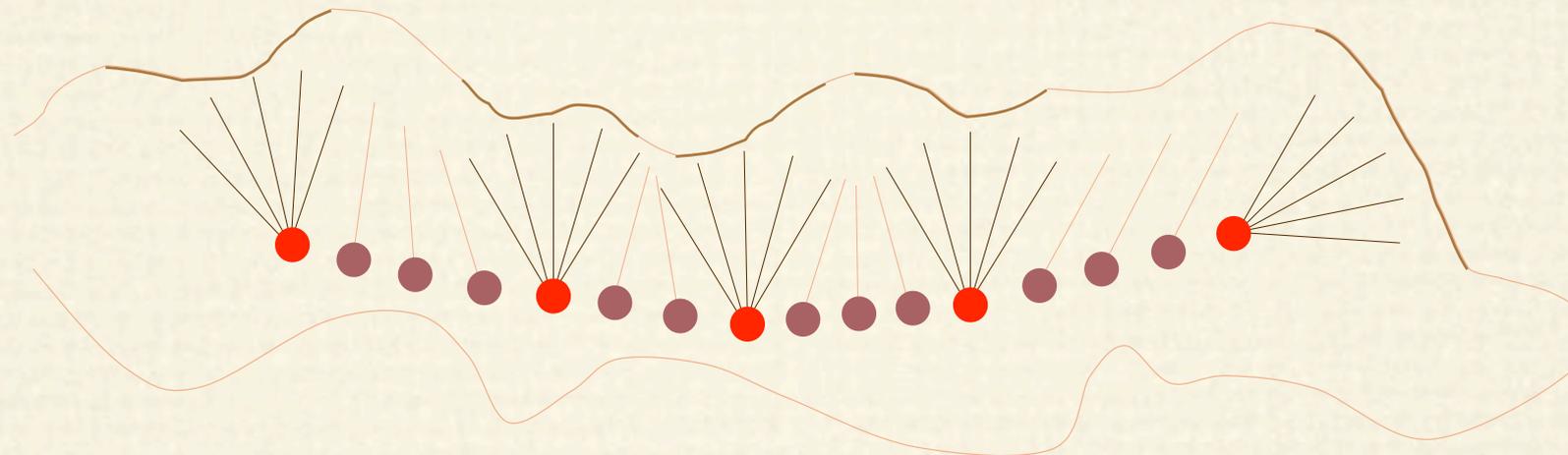BrightSide HDR display

Walt Disney
Pinocchio
(1940)

Walt Disney
Pinocchio
(1940)

Paul Rademacher
Multi-perspective elephant
(1998)

Applications of multi-perspectives

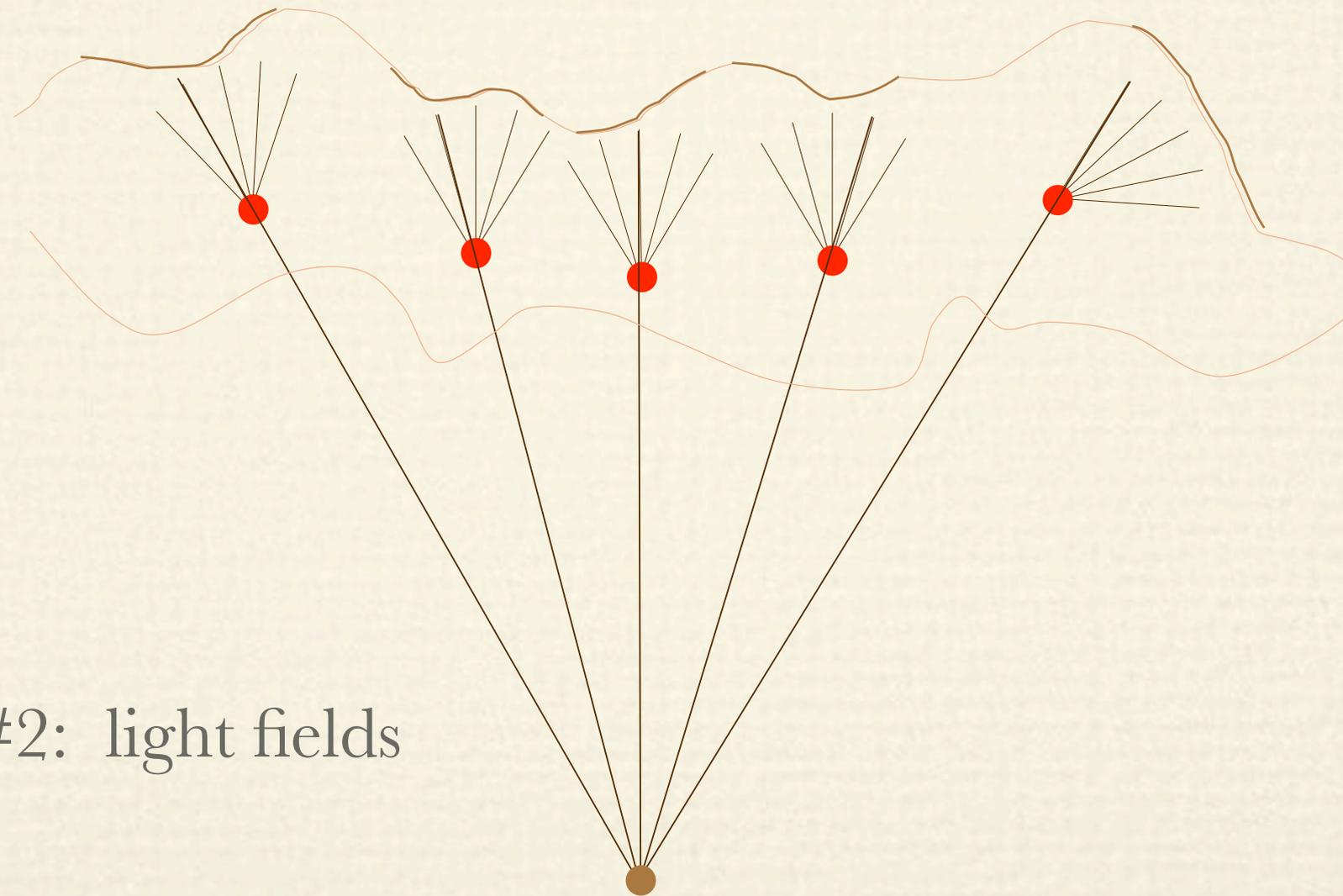How to depict a cave that contains neolithic paintings?

http://www.culture.gouv.fr/
culture/arcnat/chauvet/en/

Technique #1: smoothly varying multi-perspective
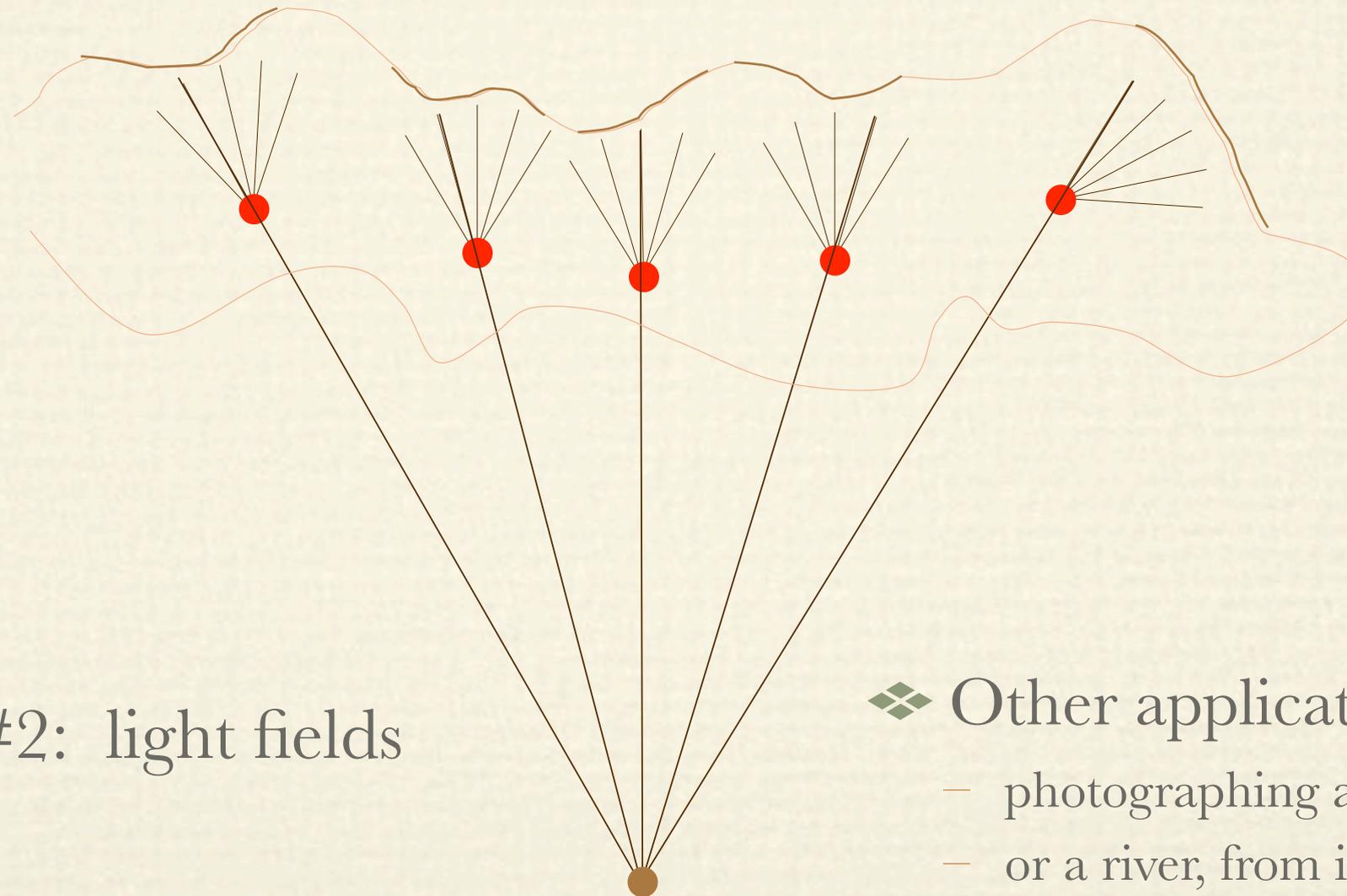
Applications of multi-perspectives

How to depict a cave that contains neolithic paintings?

Technique #2: light fields

Applications of multi-perspectives

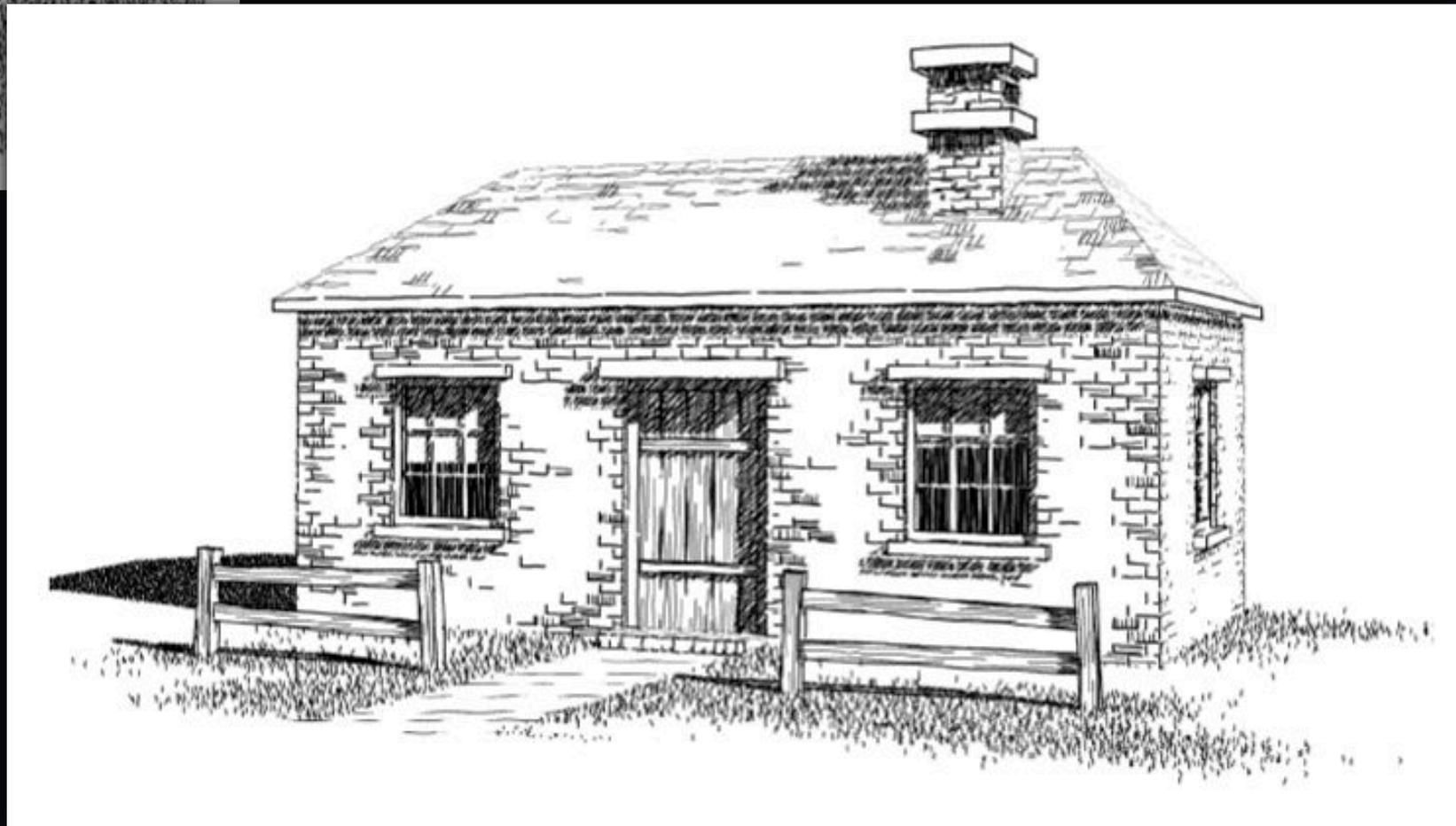How to depict a cave that contains neolithic paintings?

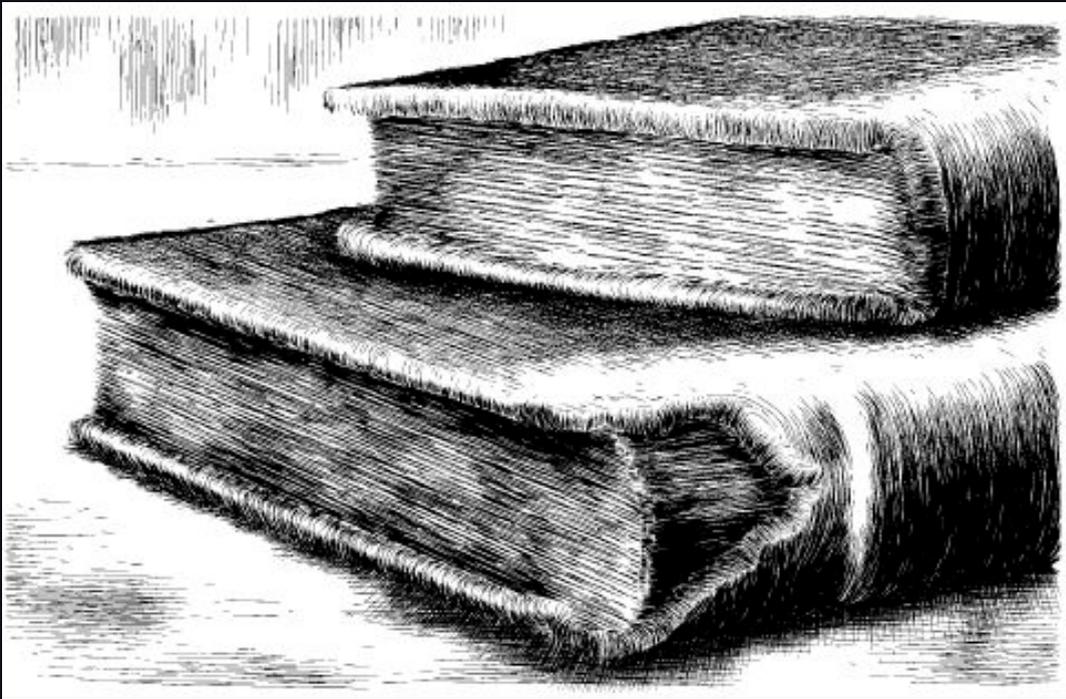
Technique #2: light fields

❖ Other applications:

— photographing a mile-long coral reef

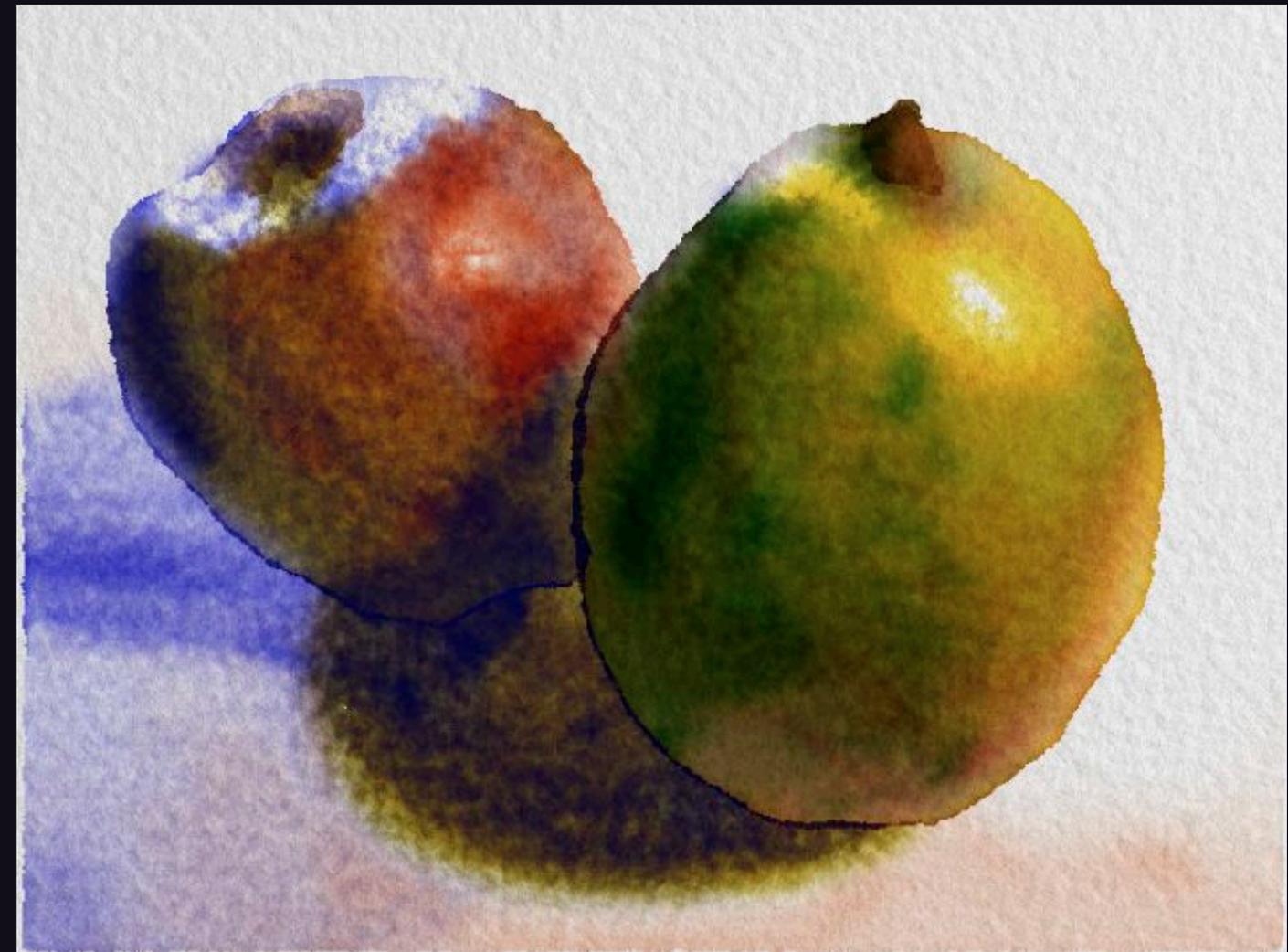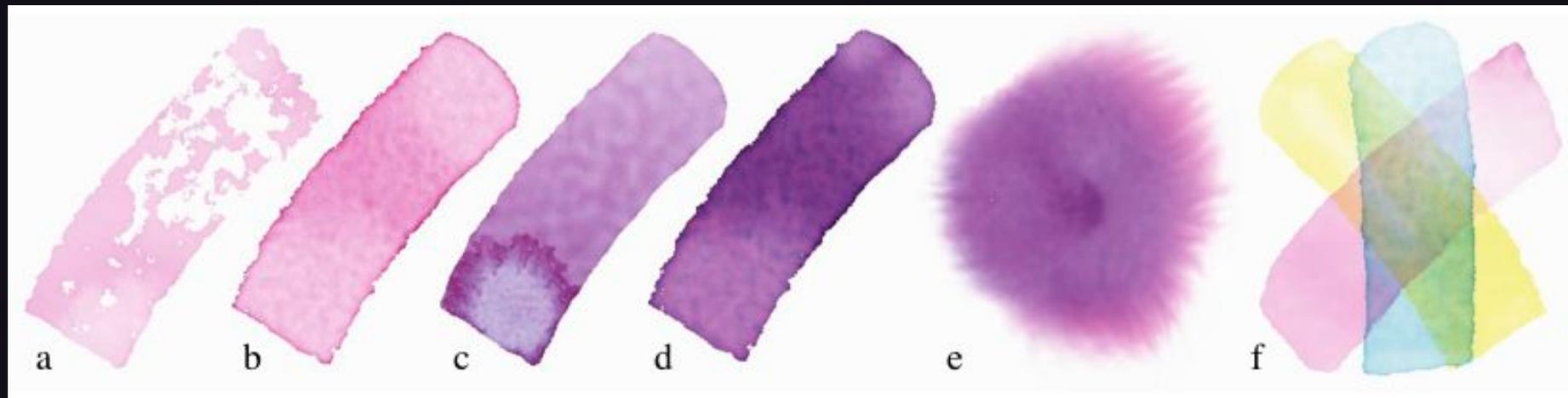— or a river, from its headwaters to the sea

Georges Winkenbach
Computer-Generated
    Pen-and-Ink Illustration
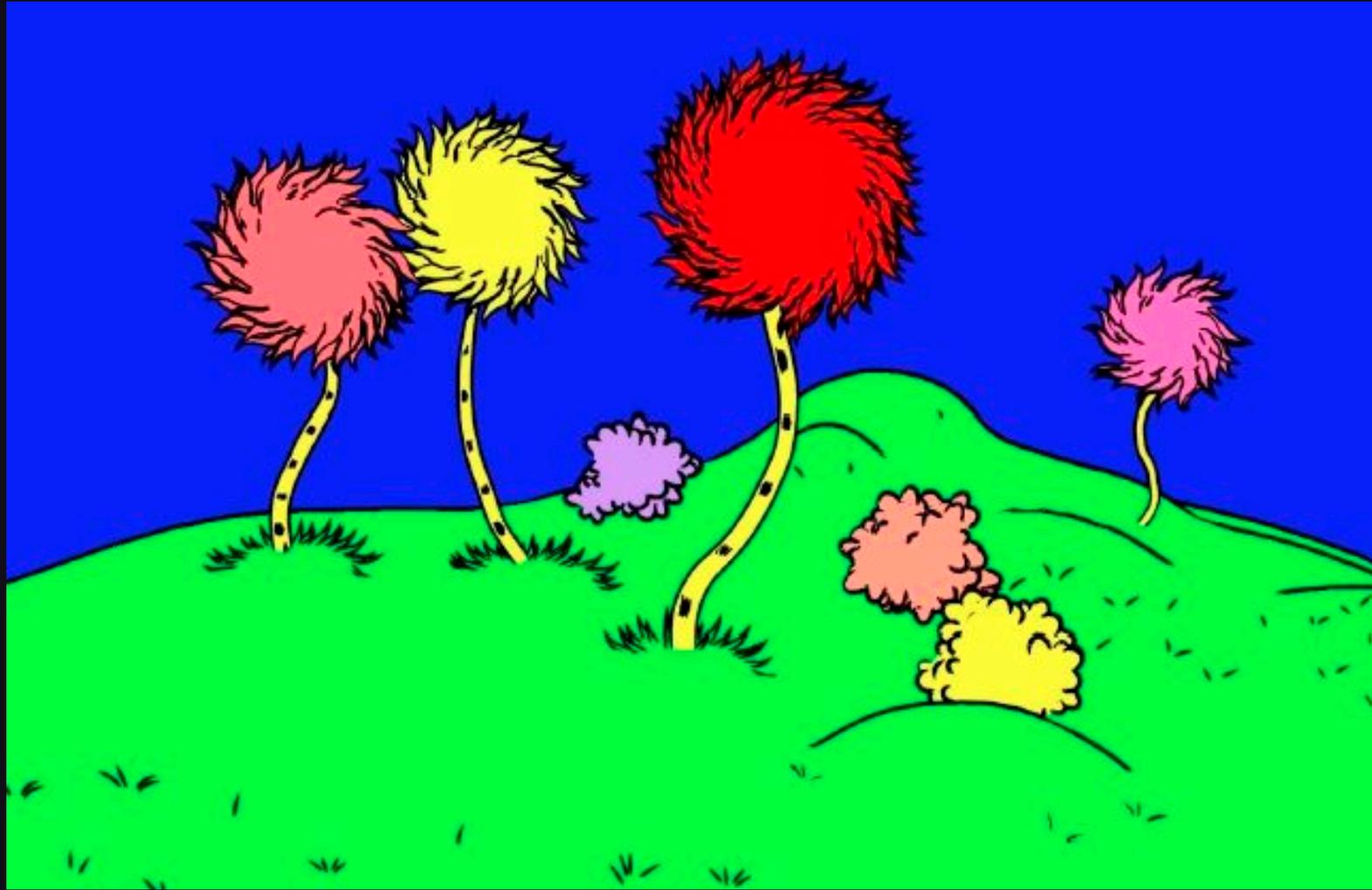[SIGGRAPH 1994]

Georges Winkenbach
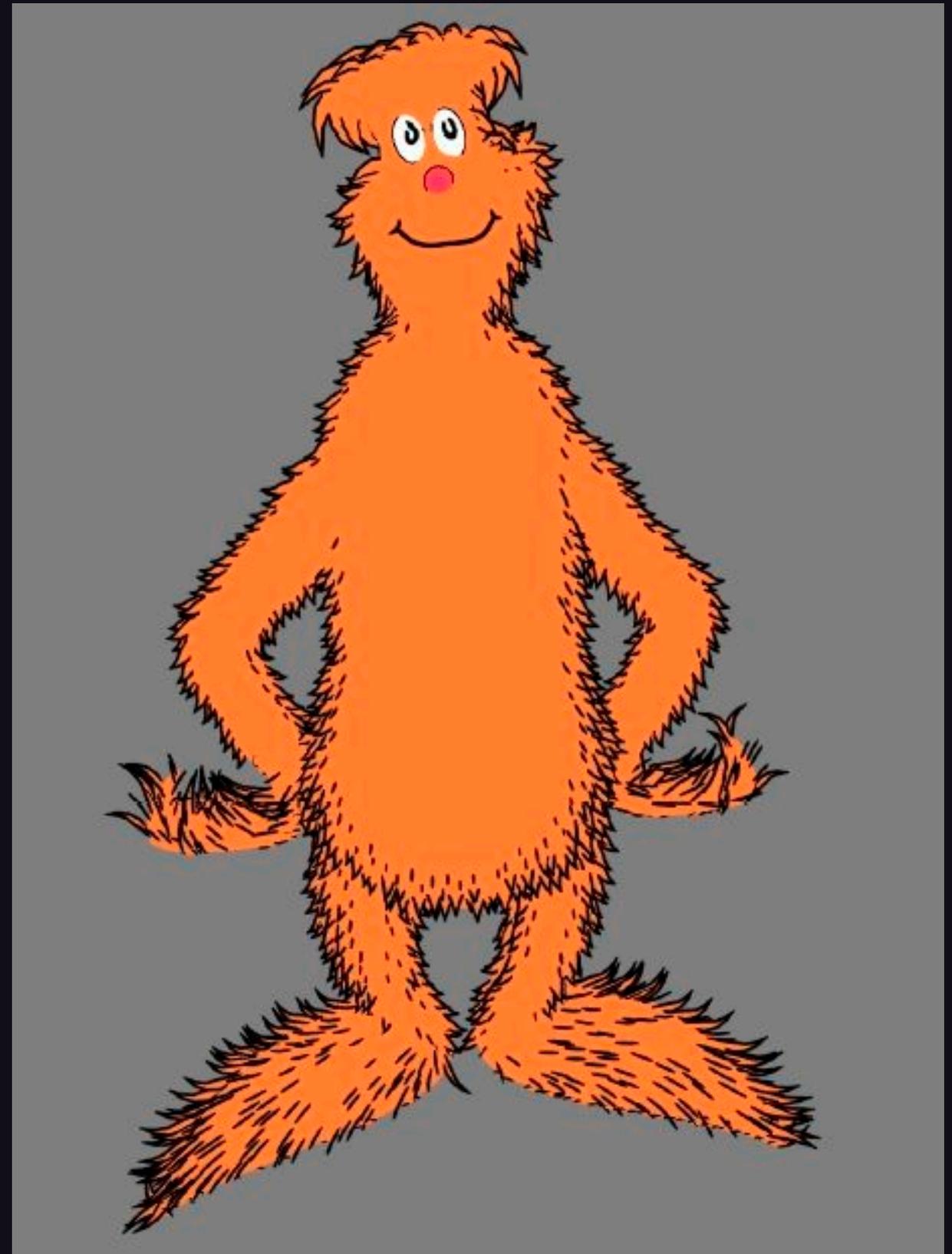Computer-Generated
    Pen-and-Ink Illustration
[SIGGRAPH 1994]

Michael Salisbury
Orientable Textures for
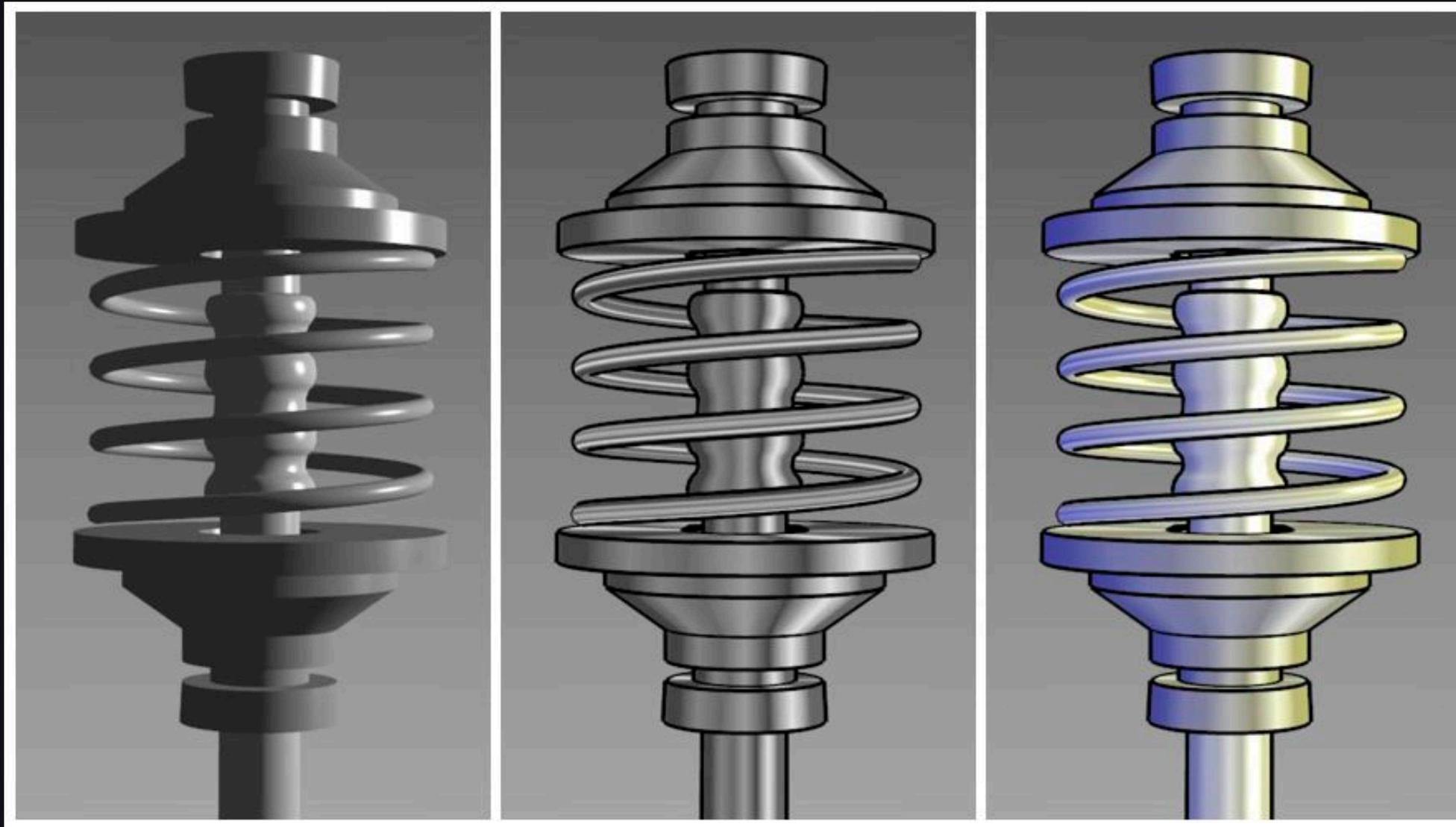Image-Based Pen-and-Ink Illustration
[SIGGRAPH 1997]

Cassidy Curtis
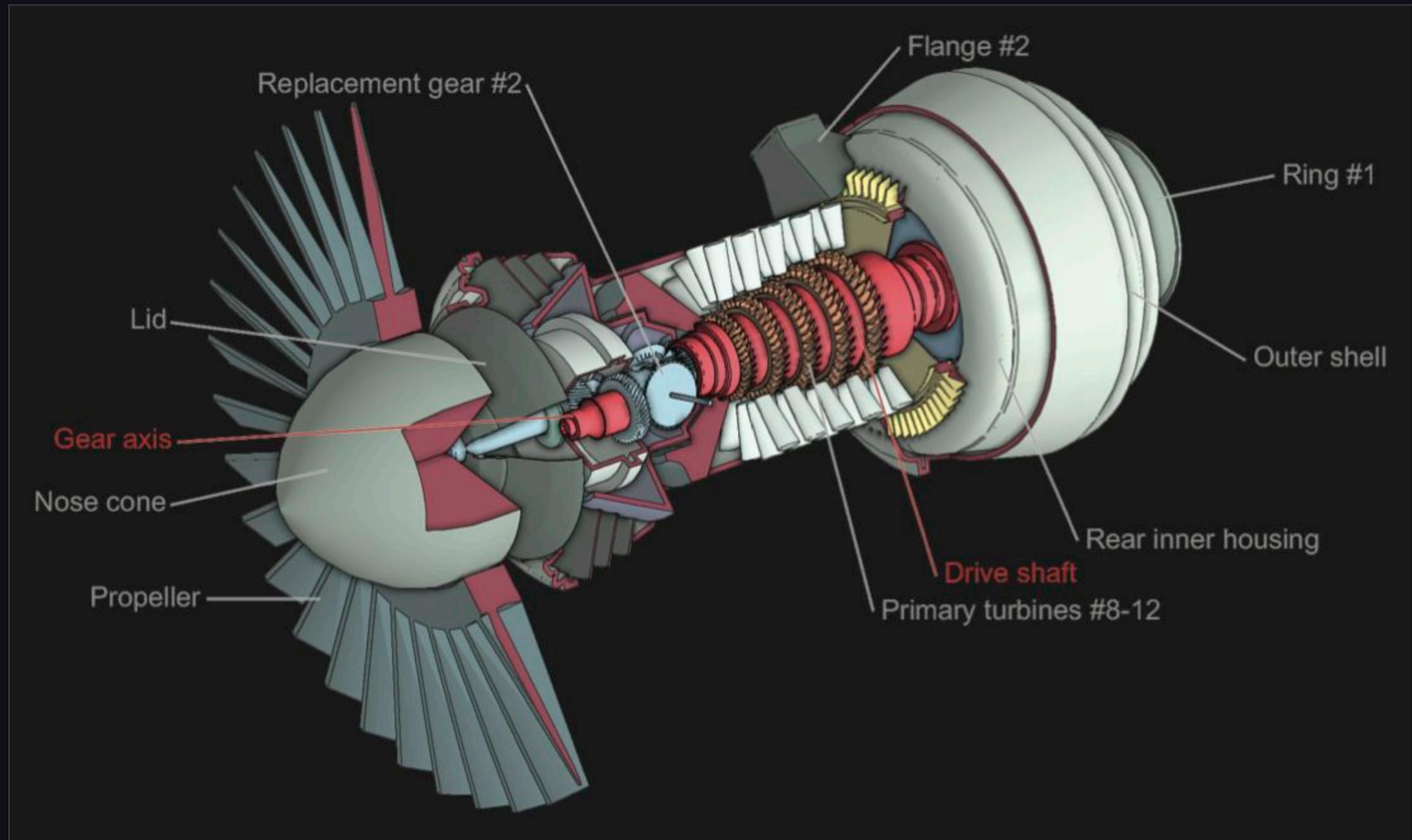Computer-Generated Watercolor
[SIGGRAPH 1997]

Michael Kowalski
Art-Based Rendering of Fur, Grass, and Trees
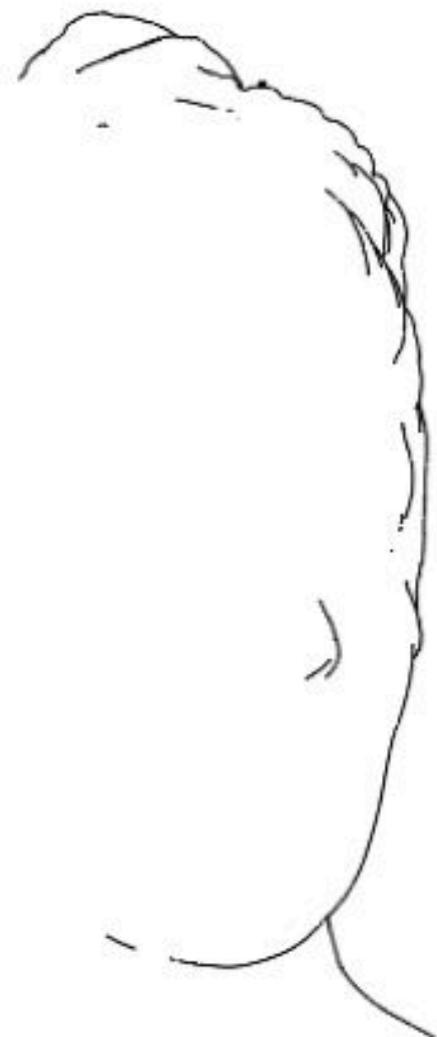[SIGGRAPH 1999]

Amy Gooch and Bruce Gooch
A Non-photorealistic Lighting Model for
   Automatic Technical Illustration
[SIGGRAPH 1998]

Wilmot Li
Interactive Cutaway Illustrations
    of Complex 3D Models
[SIGGRAPH 2007]

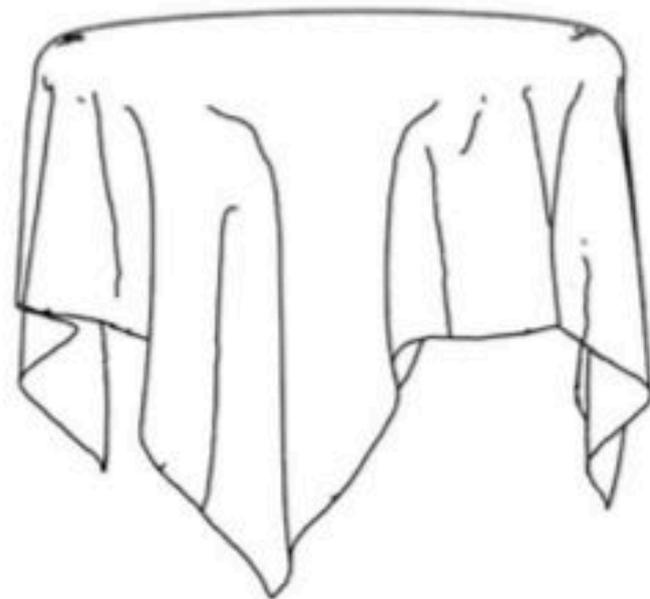Shaded View   Contours   Suggestive Contours   Ridges & Valleys   Apparent Ridges
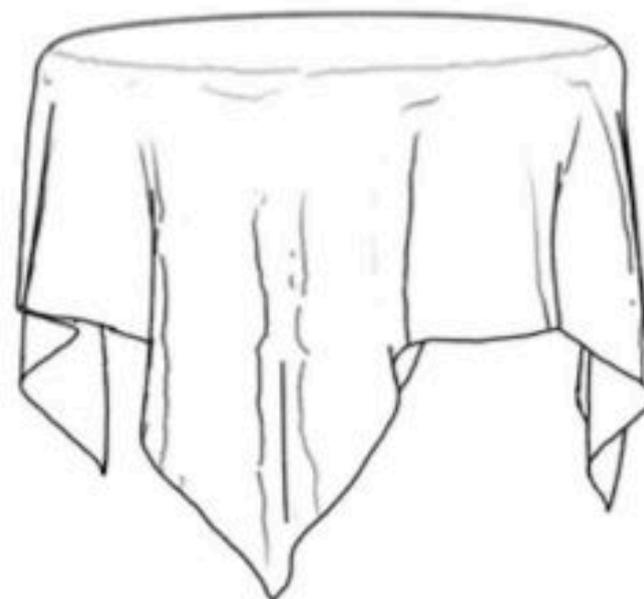
Tilke Judd
Apparent Ridges For Line Drawing
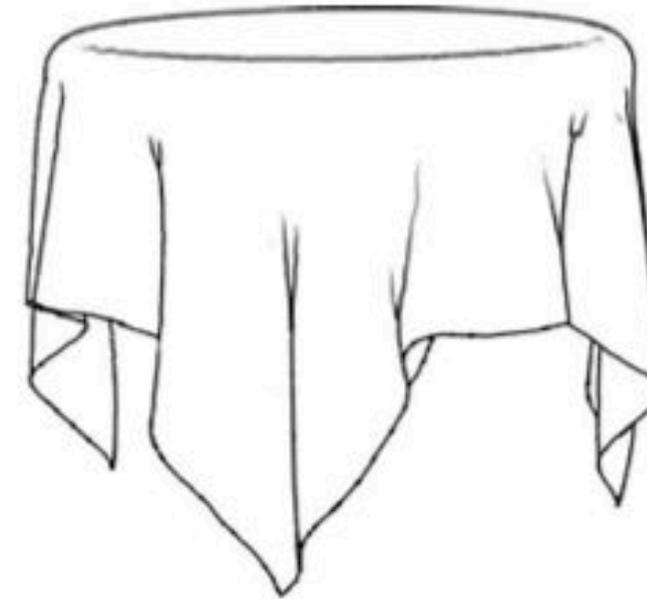[SIGGRAPH 2007]
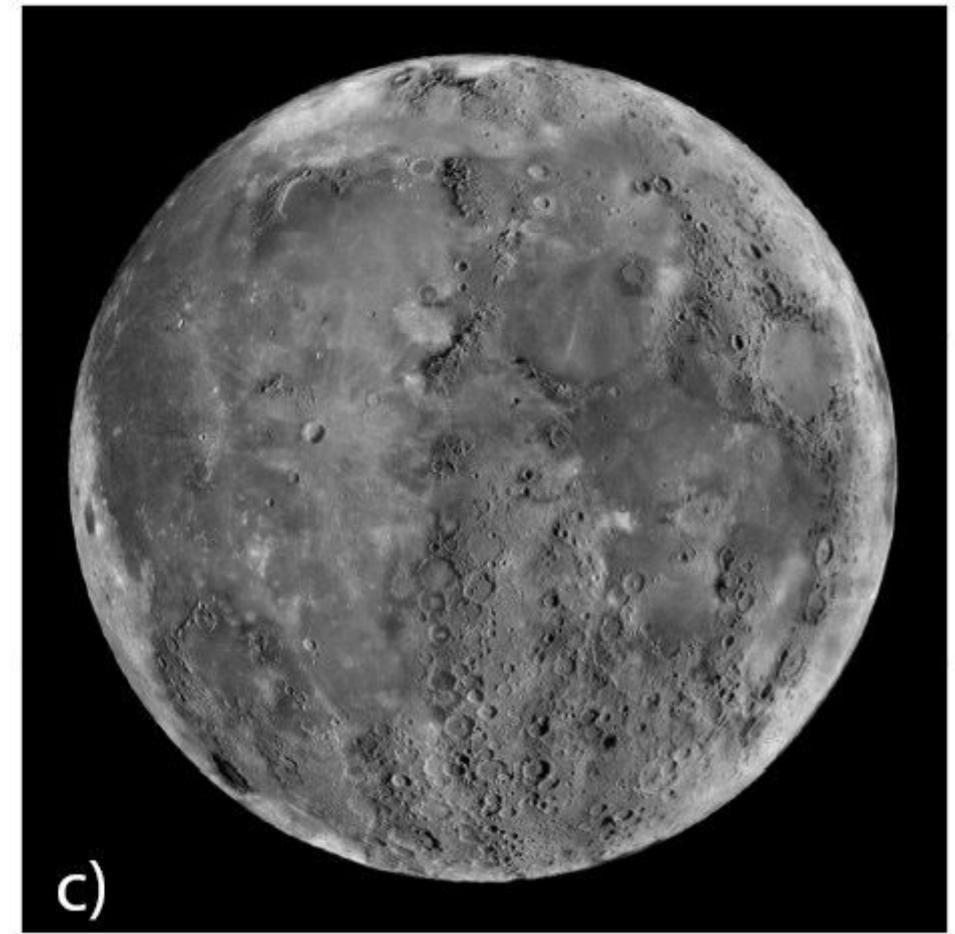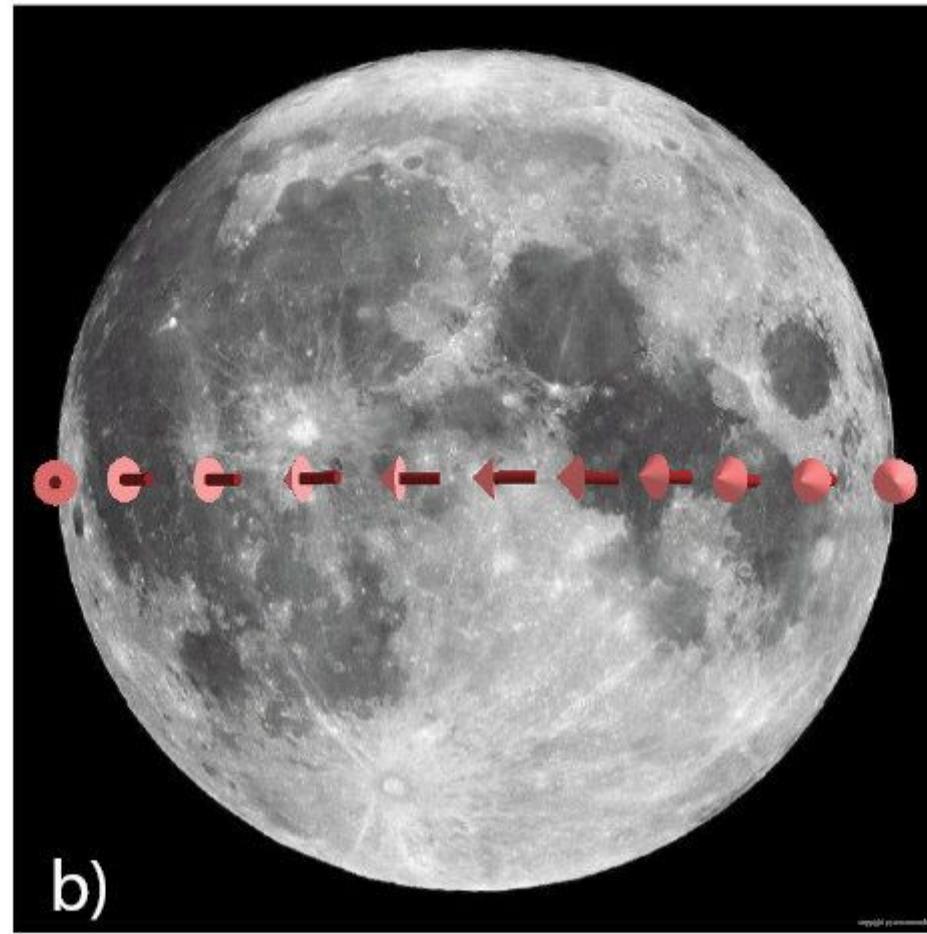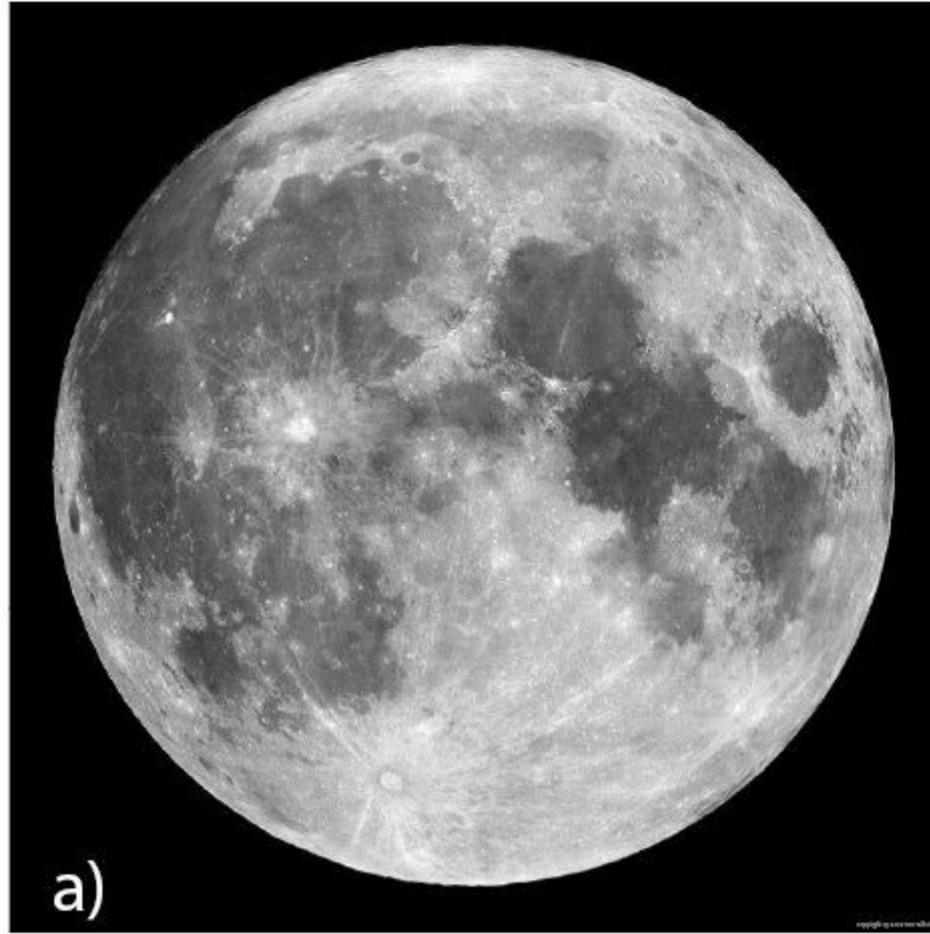
Shaded View   Suggestive Contours   Ridges & Valleys   **Apparent Ridges**

Tilke Judd
Apparent Ridges For Line Drawing
[SIGGRAPH 2007]

a) b) c)

David Akers
Conveying Shape and Features with Image-Based Relighting
[Visualization 2003]