ARCH 521: MEDIA TECH VI: WORKFLOWS: FALL 2019

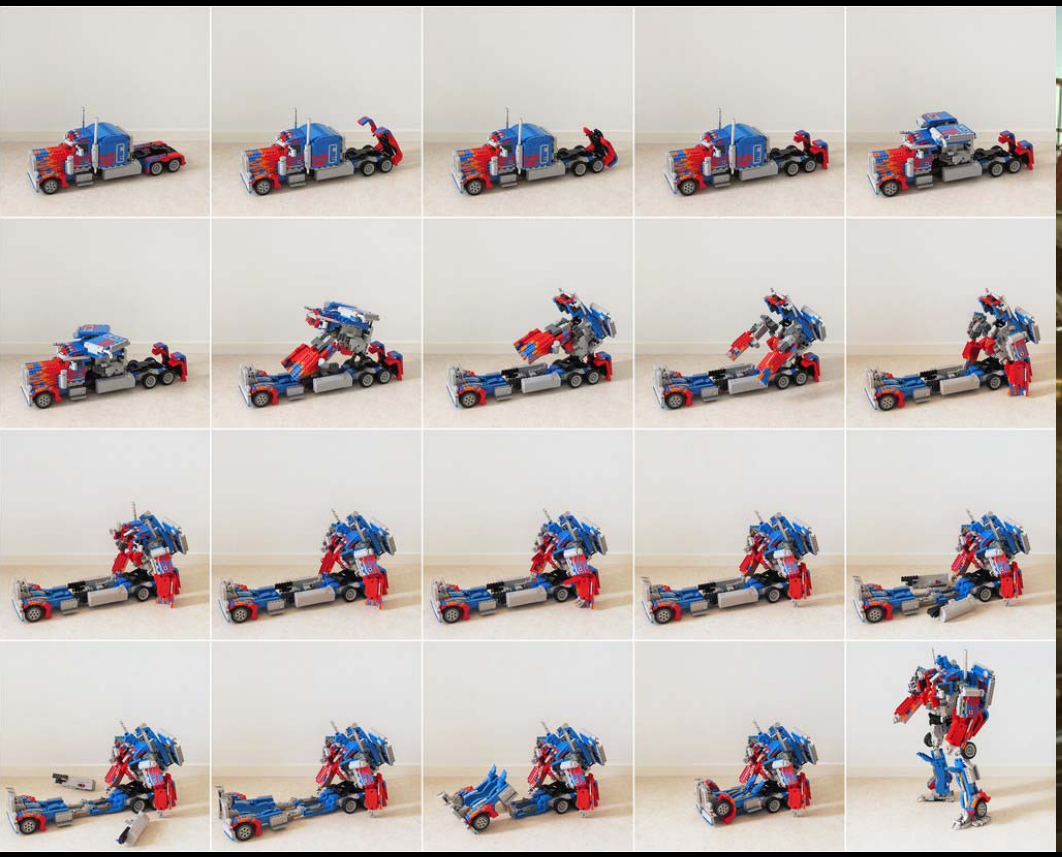
Federico Garcia Lammers

Transformers, The Last Knight. Michael Bay, 2017

Orders of Simulation

Michael Bay's Transformers don't transform, they're simulations.

How does media affect our relationship to "reality" / What is the role of simulation in the production of architecture?



Left. Transformer Toy. 2014
Right. Micheal Bay. Transformers Last Knight. 2017

Lucia Allais
“Rendering and Experience”

Newish Media
a conversation between Lucia Allias and John May.

“Whoever **fakes** an illness can simply stay in bed and make everyone believe they are ill. Whoever **simulates** an illness produces in themselves some of the symptoms.”

Littre, excerpt from Simulacra and Simulation by Jean Baudrillard.

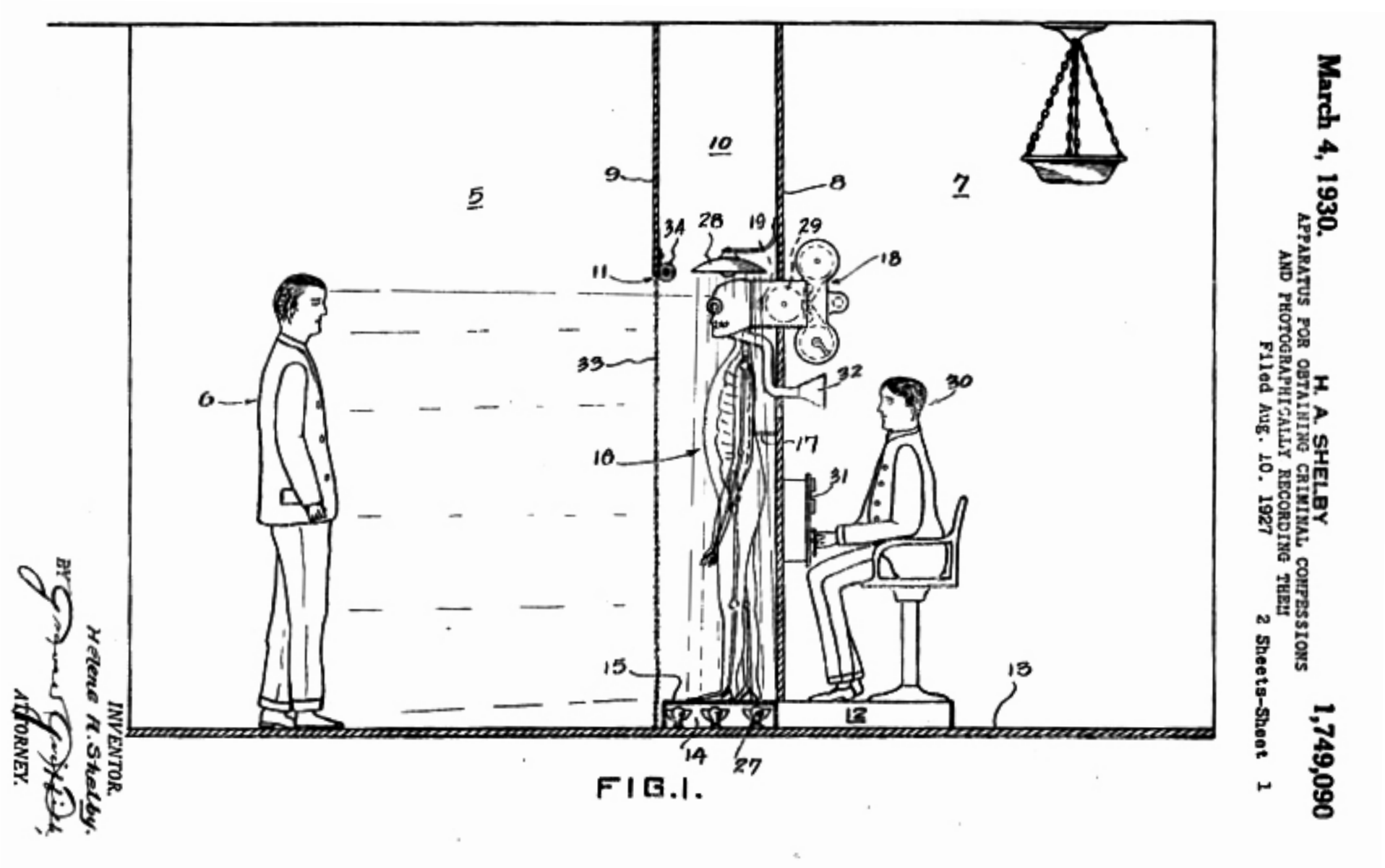
Not to fake, but to reveal through deception. Simulation can be a productive and honest form of deception.

Baudrillard. Three Orders of Simulation

1. **Simulations** that are natural, founded on the image, on imitation and counterfeit, and that aim for the restitution or the ideal institution of nature.

2. **Simulations** that are productive, founded on energy, force, its materialization by the machine and in the whole system of production.

3. **Simulations** that are founded on information, the model, the cybernetic game, total operational.



Helene Shelby.
Apparatus for Obtaining Criminal Confessions and Photographically Recording Them. 1927

Ontological Arguments

Existence of “the real”.

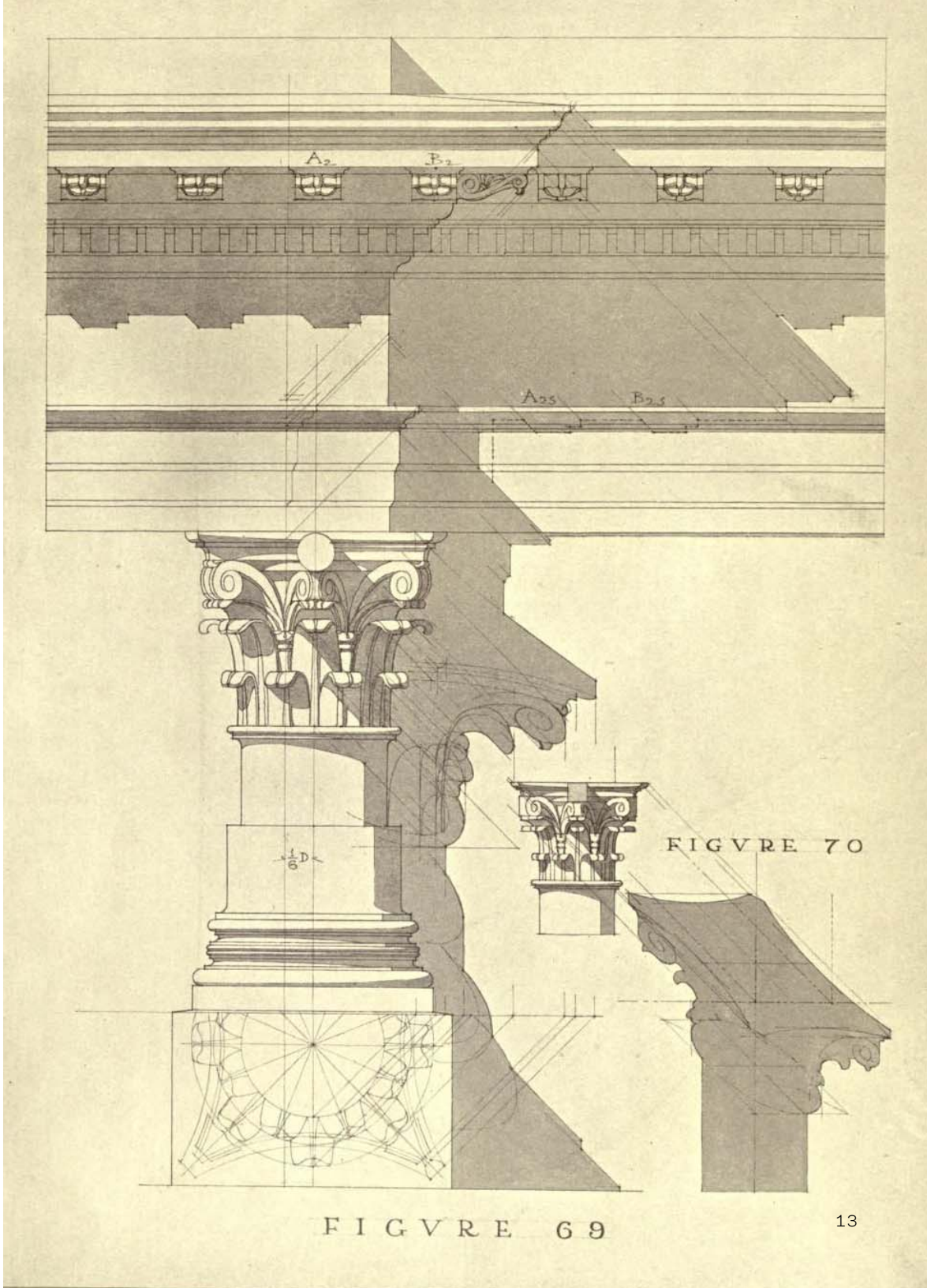
Renderings are dismissed as engines of superficiality.

The Living. Hi-Fi, MoMA PS1. 2014

What is at stake in the attacks on rendering? The mathematization of the world itself.

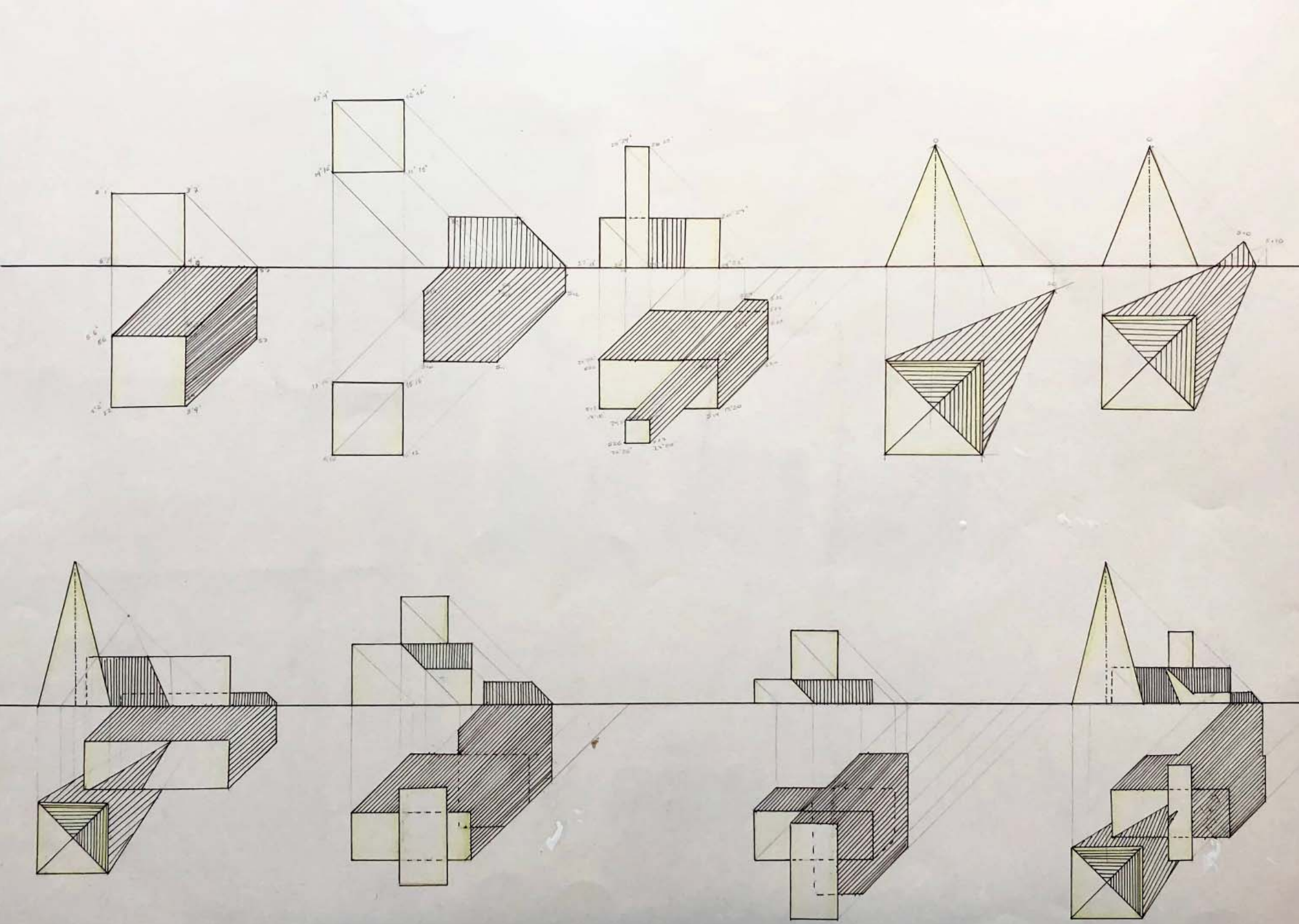
Mathematization is a product of simulation.

Henry McGoodwin.
Shadow Casting Manual. 1923



Shade and shadows are mathematical things.

McGoodwin cautions against representing shadows without calculation.



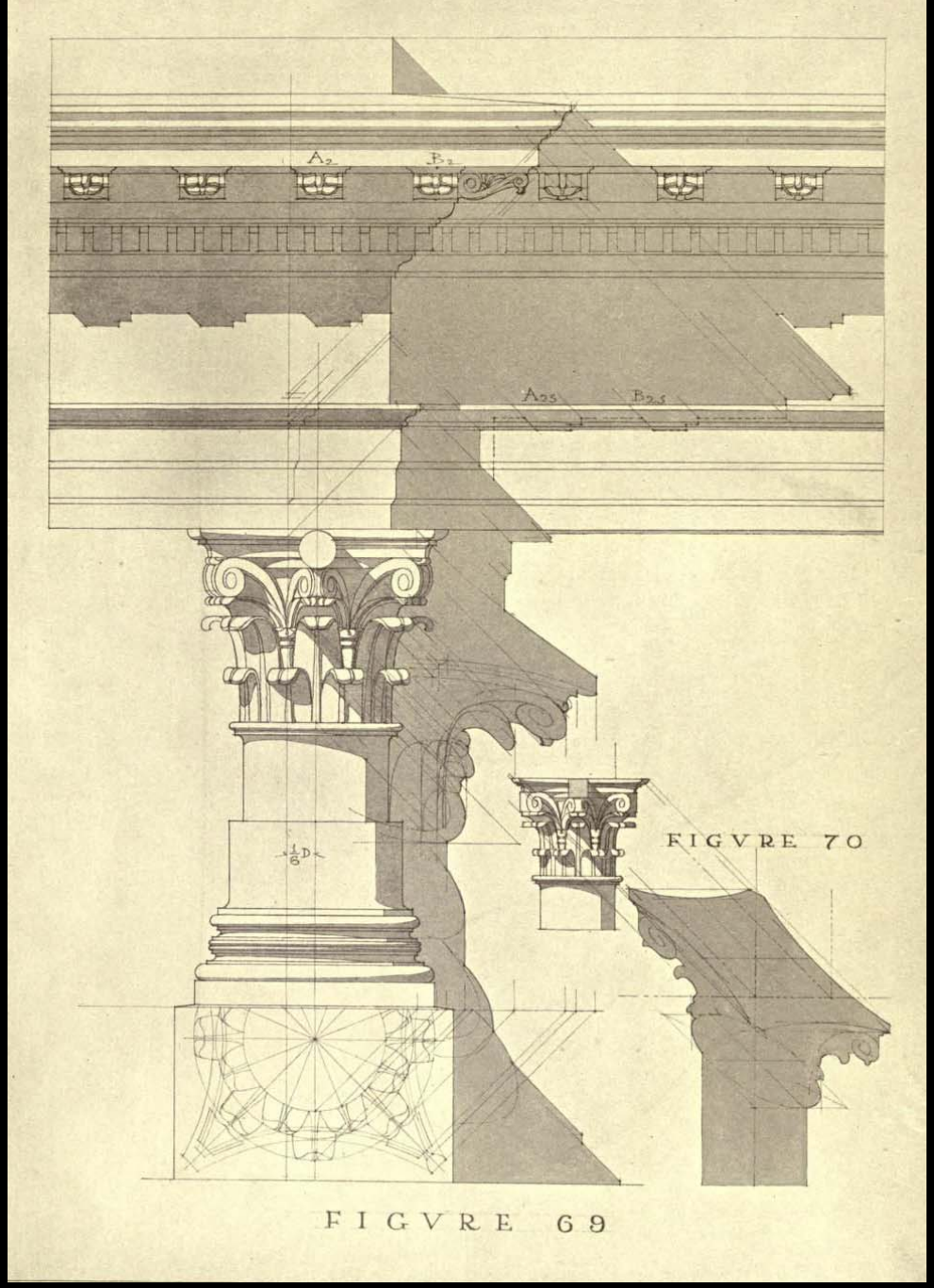
Federico Garcia Lammers.
Low Pass, Shadow Calculation Exam. Instituto Crandon. 1997

Geometry as a tool for experience.
Experience as a form of practice.

Experience of drafting delivers practical and specific knowledge.

Shadows are also experienced empirically in daily life.

The historical project of rendering happens at the intersection of these two - calculable and incalculable - modes of seeing.



Henry McGoodwin.
Shadow Casting Manual. 1923

Linear graphic representation
“the cult of the line” refers to the difference between autographic and allographic production that we talked about in week one.

How did Alberti set the stage for a loss of embodied experience?

Human ideals of reproduction and the pursuit of copies - productive simulations at the intersection of the three orders of simulations described by Baudrillard.

Carpo claims that the numerical open-endedness is not new, but it is reaching its potential after the digital turn.

Architecture seen as a scientific discipline aided by rendering.

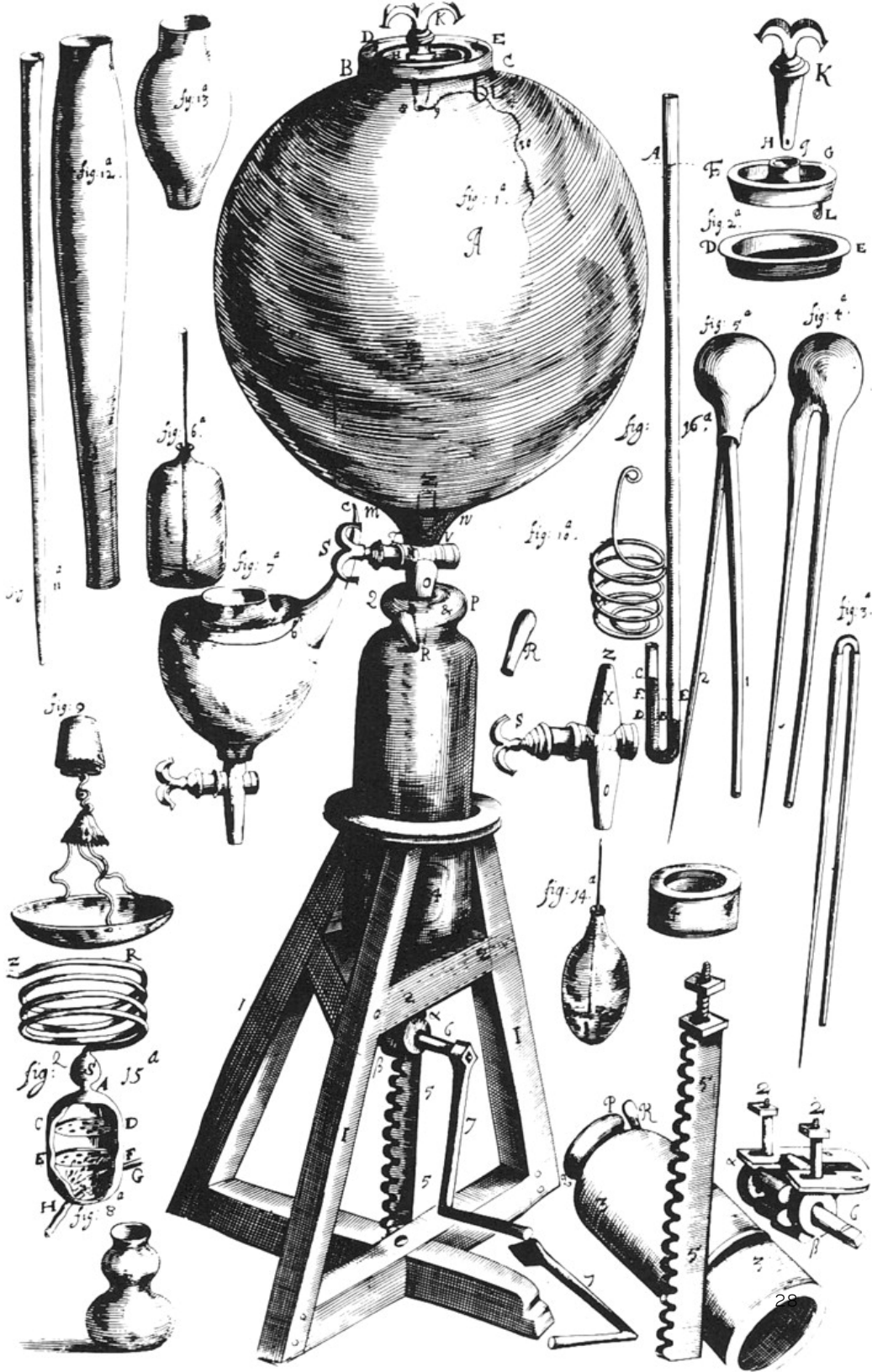
Renderings work as discrete units of experience that have carried over from three technical revolutions:

Scientific, Industrial, Digital.

The rise of the laboratory.
Experiments vs Experience.

How do people experience the experiment?

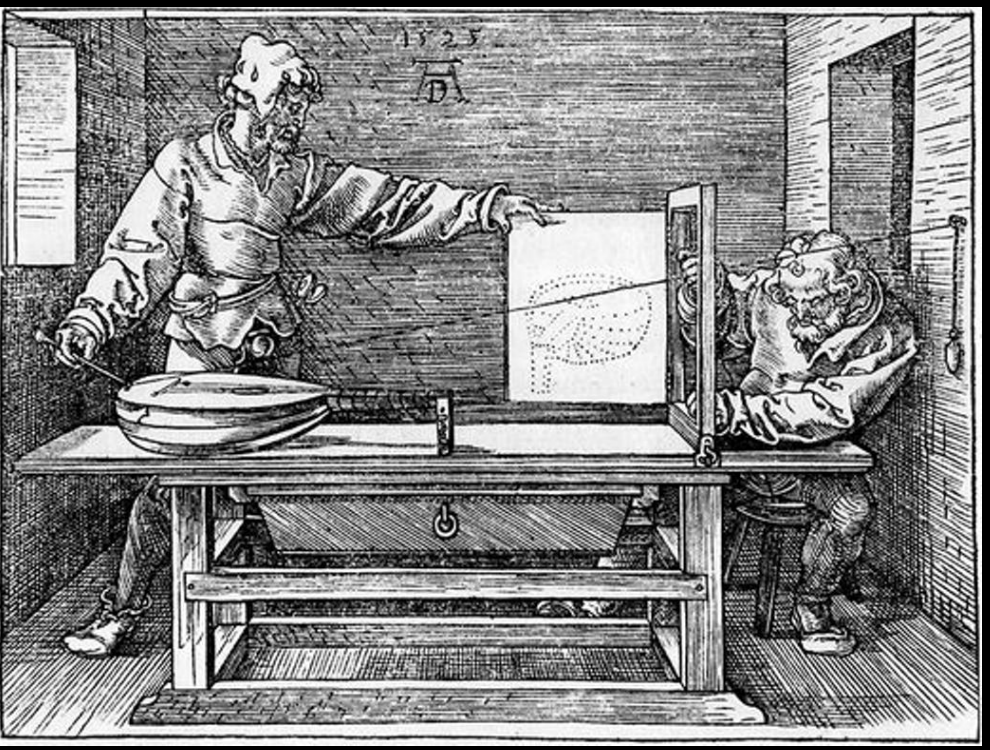
Robert Boyle. First Air Pump.1661

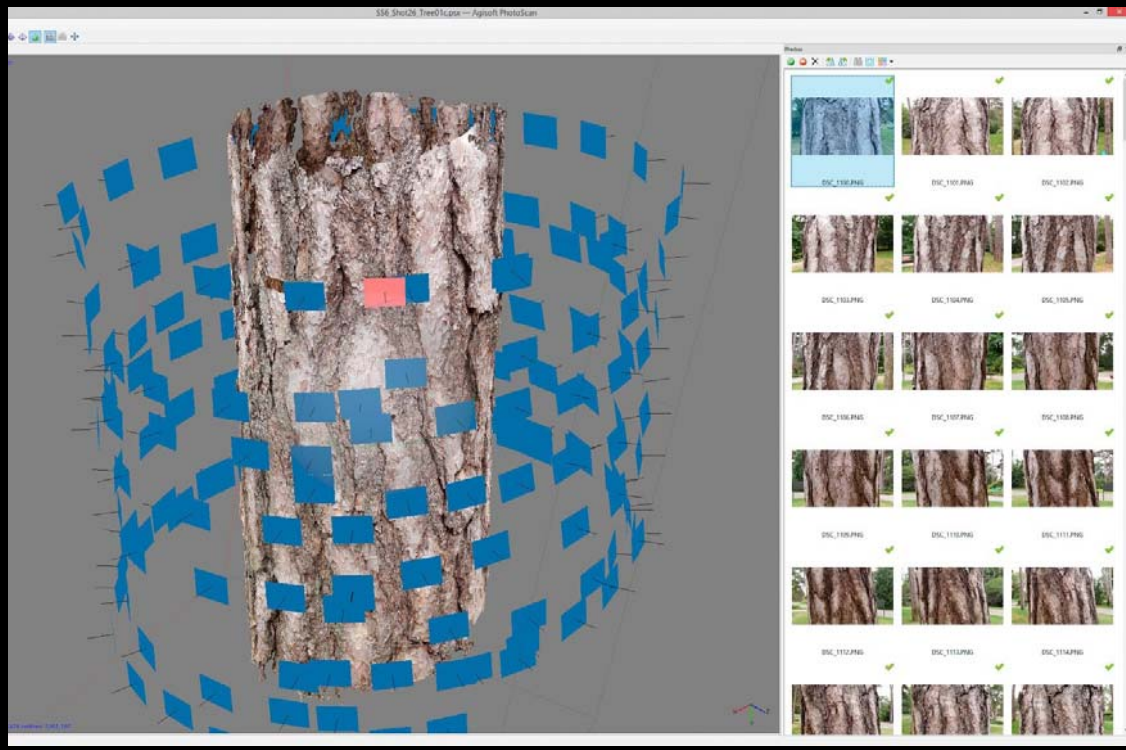


Virtual witnessing.

Photogrammetry.
Metrics from photographs
Shadows into lines
Lines into shadows

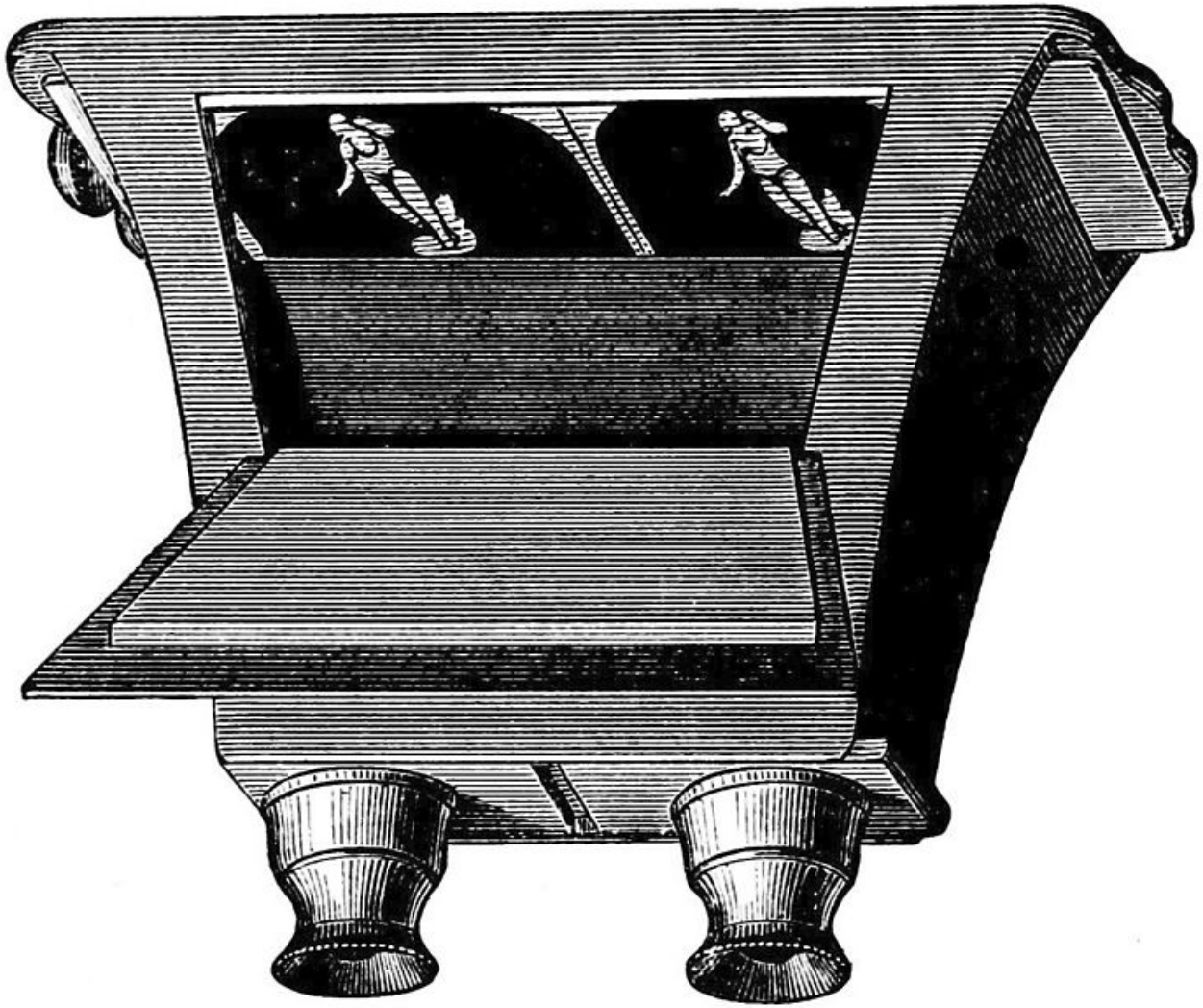
How is the illusion of three-dimensionality manifested?



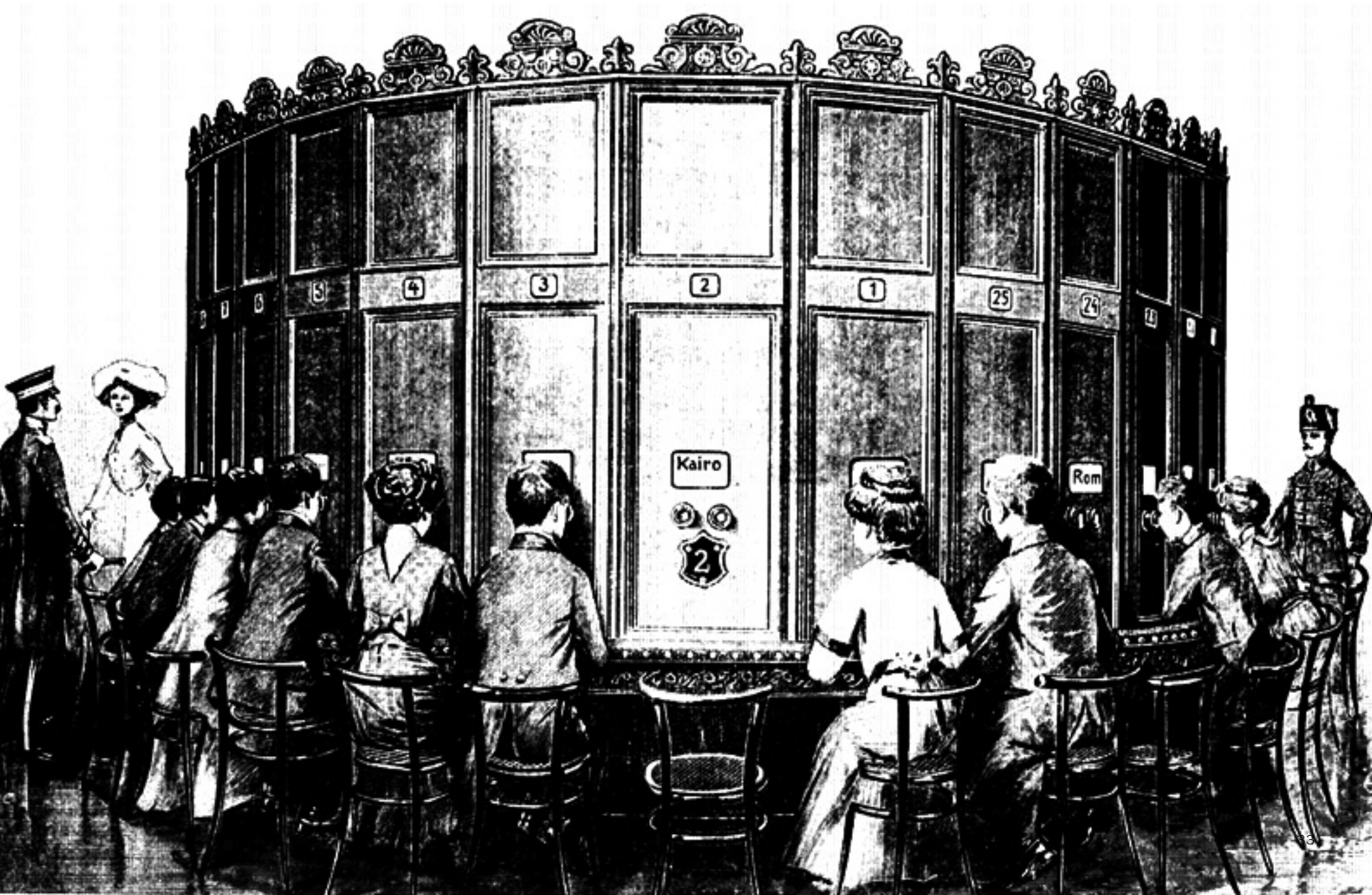


Left. Albrecht Durer. Draughtsmen with Lute 44. 1525
Right. National Park Service. Tree Registry. 2017

David Brewster. Stereoscope. 1839



August Fuhrmann. Kaiserpanorama. 1890



The implication is that machines can truthfully reconstitute reality because they represent a continuity of our perception of reality.

In other words, machines make simulations that are compatible with what we think is important about the world we live in.

Rendering software
mathematically models the act of seeing in two categories:

Raytracing and Radiosity:
Objects vs Atmosphere
(cast vs ambient shadows)

Diorama. Competition Images. 2015

Renderings oscillate between these simulated modes of seeing.

Open Revit

Copied from Autodesk:
Raytraced shadows can produce soft and transparent shadows but can be very time consuming.

Raytracing is a type of shadow rendering where the path of individual light rays are calculated from their source (the light) to their destination (the camera).

Use raytraced shadows only to produce more physically accurate shadows (like those in the real world). Common purposes include:

- (for area lights only) where shadows blur and become lighter as they increase in distance from the object
- to produce shadows from transparent colored surfaces
- to produce soft-edged shadows (though depth maps can also produce good results)

To create raytraced shadows, see Render raytraced shadows.