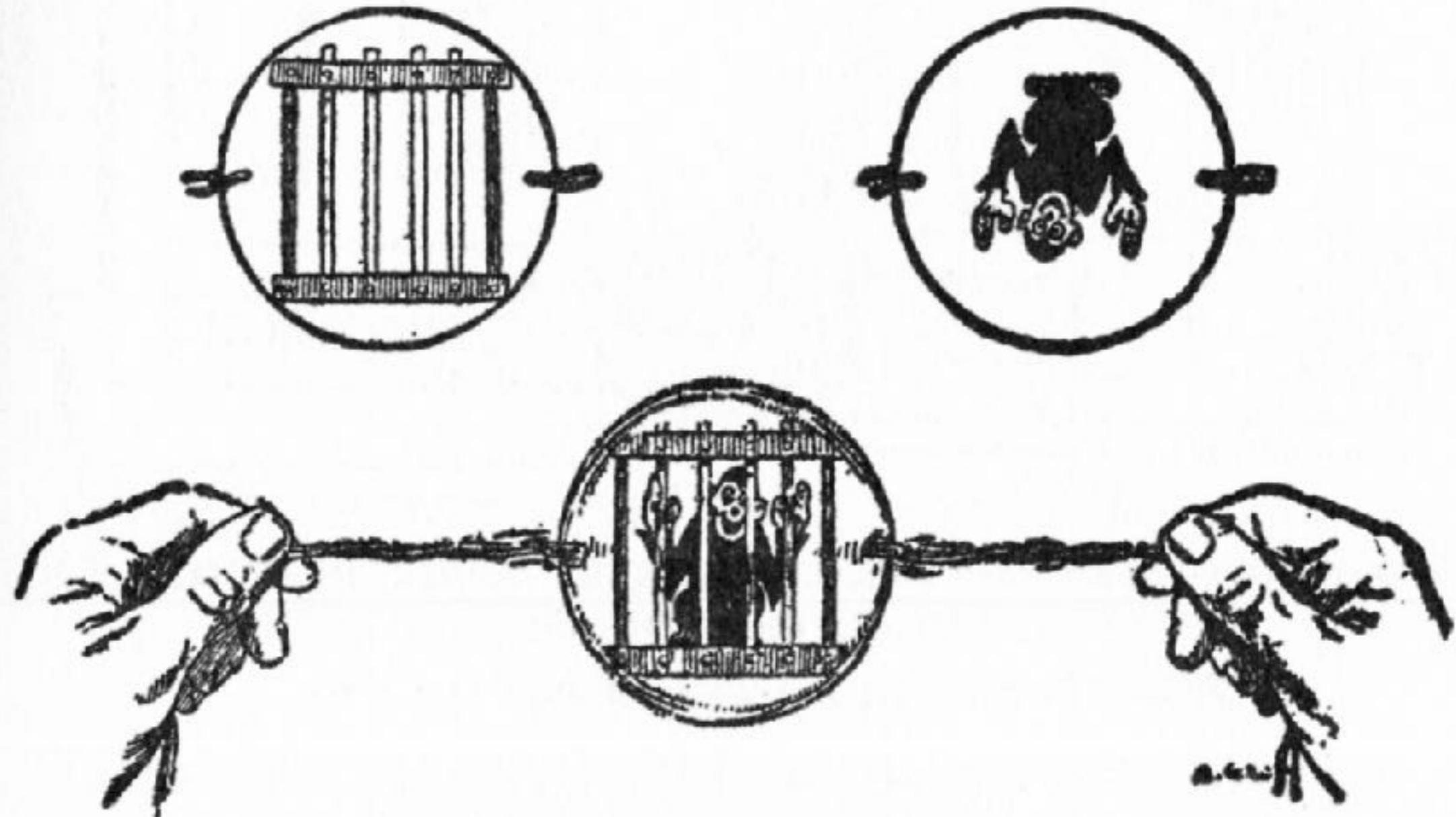




Chauvet Cave
33,000 BC



Shahr-e Sukteh, Iran
3,000 BCE



THE THAUMATROPE.

Above: How the designs of the two sides are placed with respect to each other.

Below: The combined image when the thaumatrope is twirled.

Thaumatrope
1824





Disney: Snow White and the Seven Dwarfs
First full length animated feature, 1937

12 basic principles of animation:

1. Squash and Stretch
2. Anticipation
3. Staging
4. Straight Ahead & Pose to Pose
5. Follow Through and Overlapping Action
6. Ease In and Out
7. Arc
8. Secondary Action
9. Timing
10. Exaggeration
11. Solid Drawing
12. Appeal



SQUASHED

&

STRETCHED

&

TWISTED



DEJECTED



JOY



TANTRUM



CURIOUS



COCKY



LAUGHTER



BELIGERENT



MORE LAUGHTER



CRYING



HAPPY

The famous half-filled flour sack, guide to maintaining volume in any animatable shape, and proof that attitudes can be achieved with the simplest of shapes.

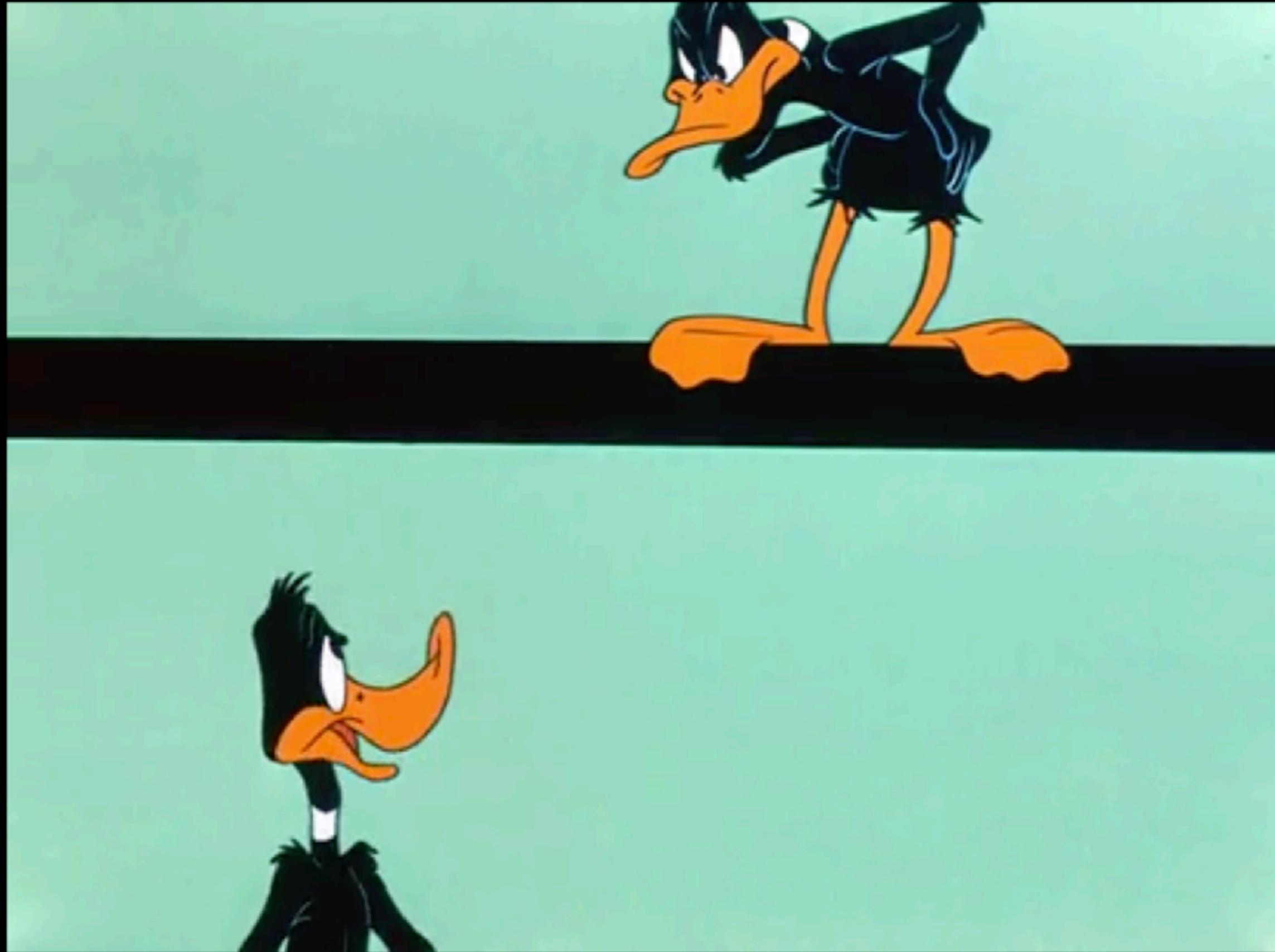
Bouncing Ball

In moving the circle (representing the ball) down and back up, it was discovered that the ball would seem to

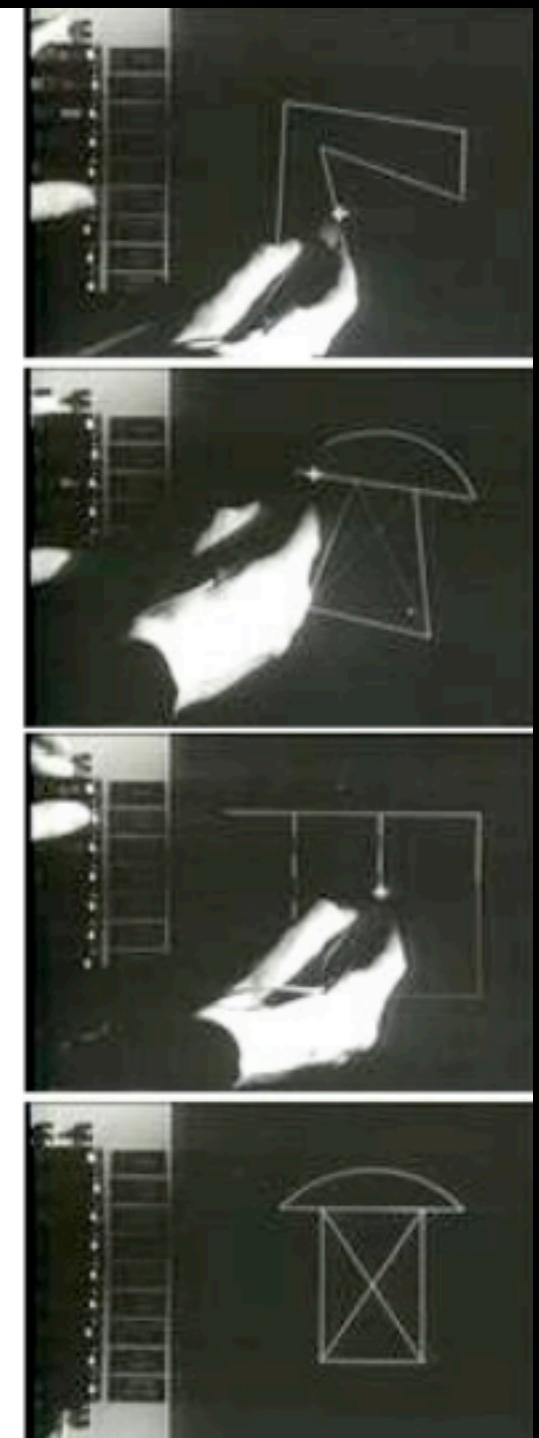
have more weight if the drawings were closer together at the top and spaced farther apart at the bottom.

Then, if the bottom drawing was flattened, it gave the appearance of bouncing. Elongating the drawings on each side made it easier to

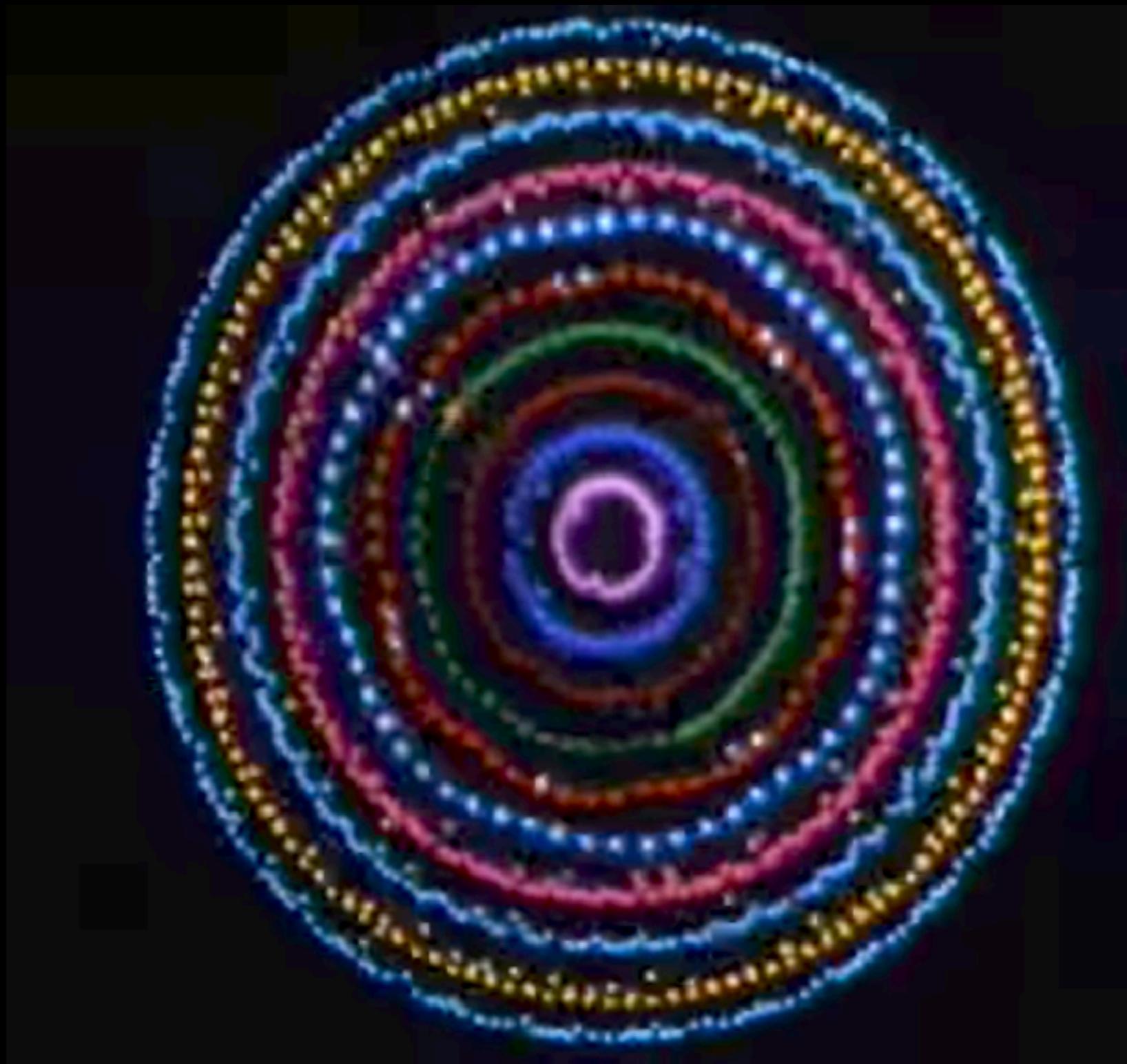
follow and gave more snap to the action. Thus, the beginnings of Squash and Stretch.



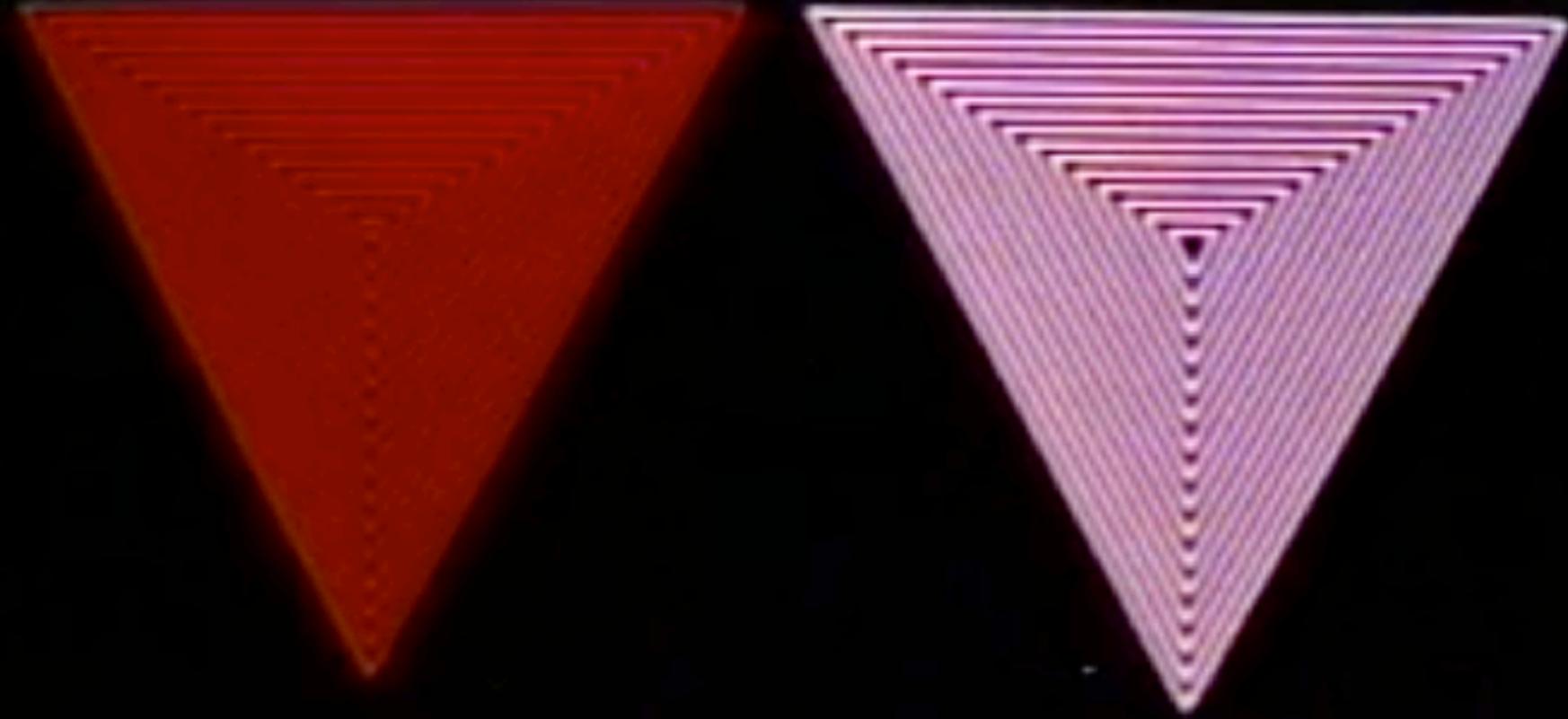
Duck Amuck, Chuck Jones Director



Ivan Sutherland, "The Father of Computer Graphics"
Invents [Sketchpad](#) at MIT/Lincoln Labs
The First GUI (Graphical User Interface), 1963

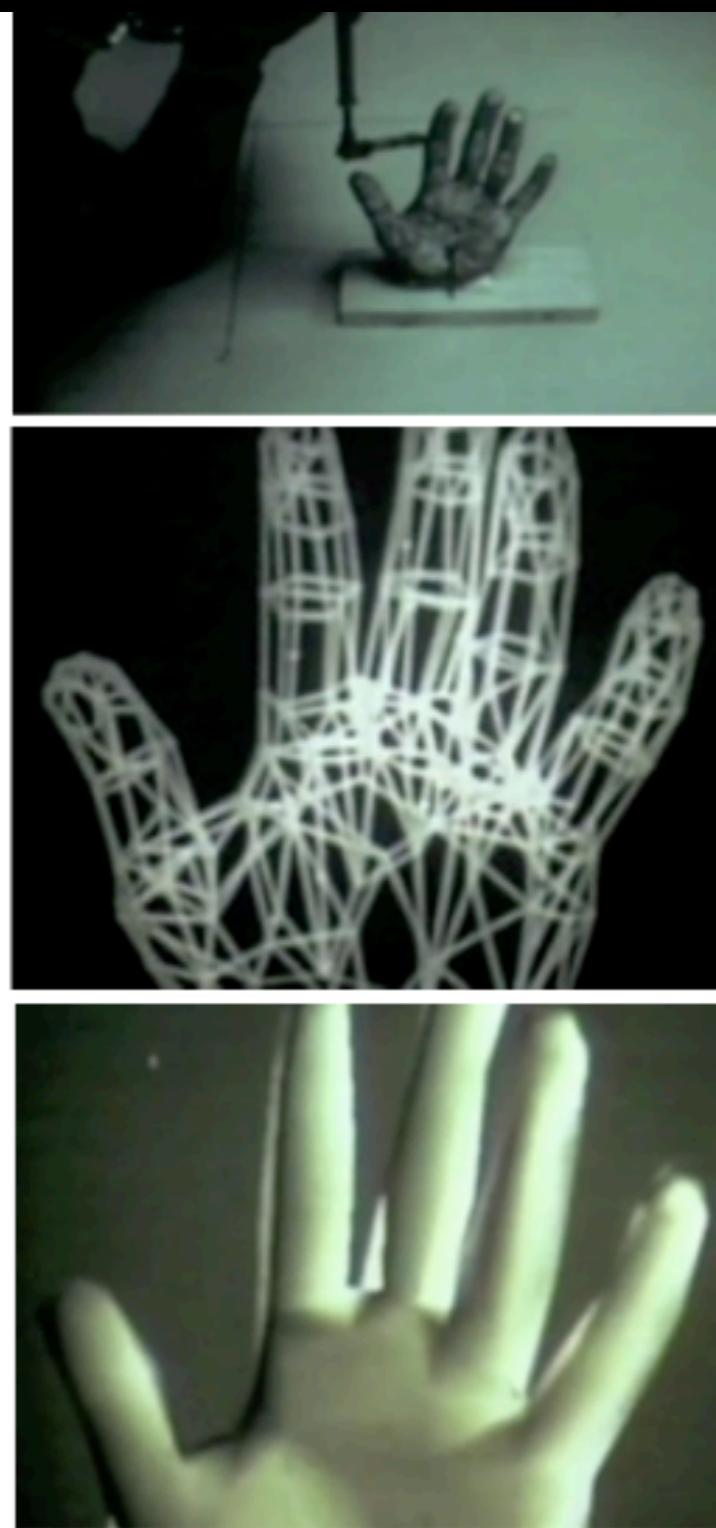
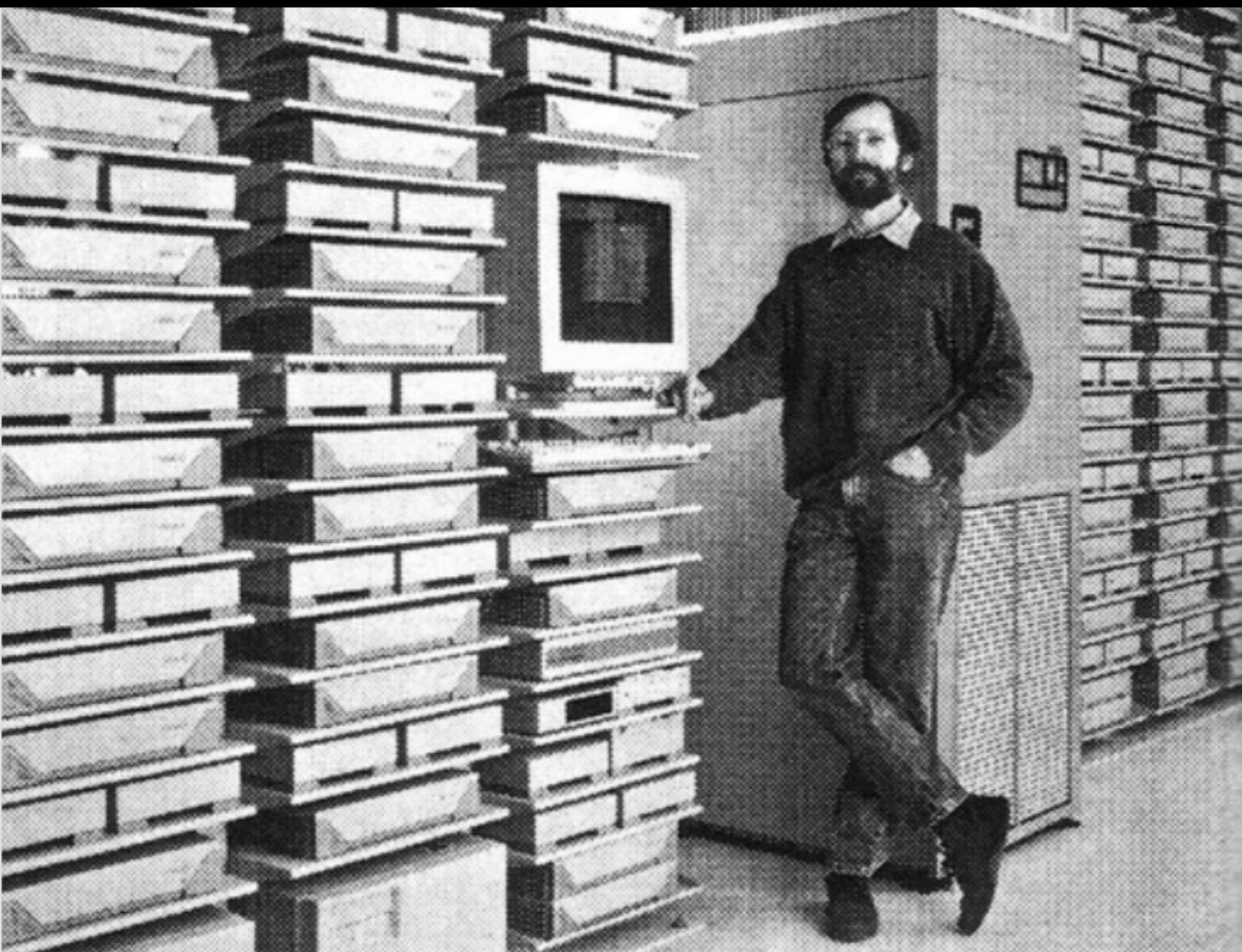


Permutations, 1968
John Whitney

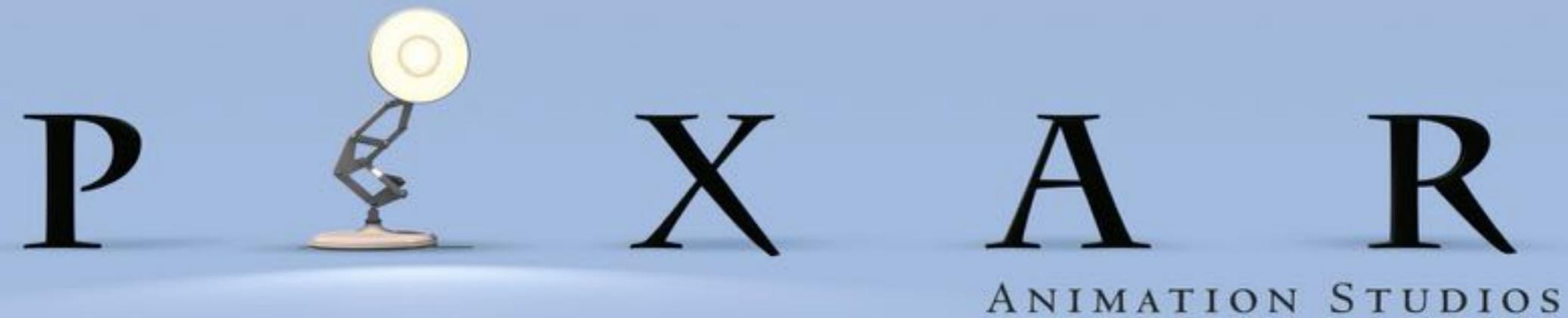


Matrix III, 1972

John Whitney



Edwin Catmull Invents Digital 3D Modeling Systems
(will go on to co-found Pixar), 1974



Pixar: [Luxo Jr.](#), John Lasseter, director

1st CGI film nominated for an Academy Award, 1986

GIF

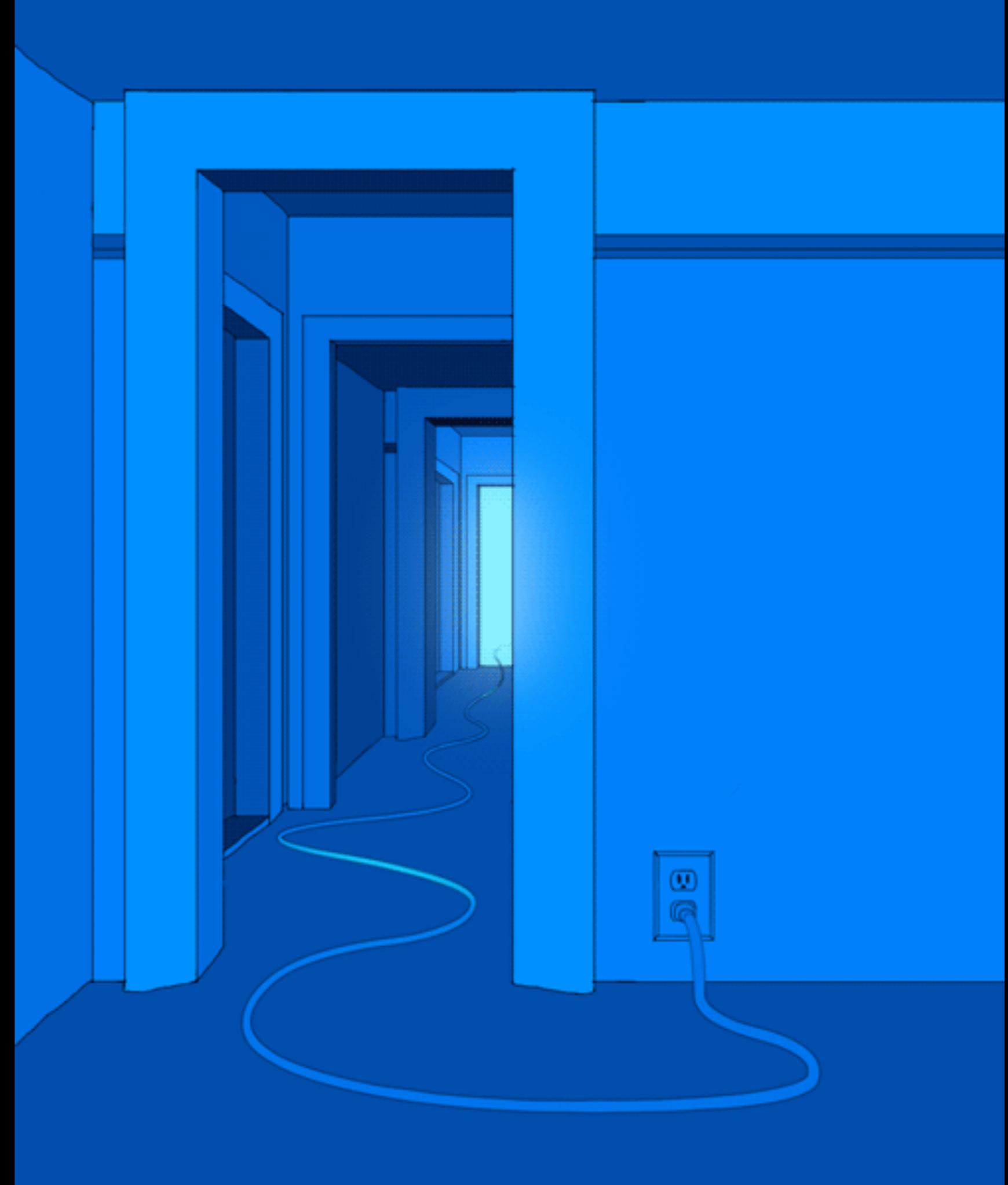
Graphic Interchange Format



Steve Whilhite

1987, CompuServe

2013 - Wins Lifetime Achievement Award @ the 17th Annual Webby's



Carl Burton



SUN

Words

Enle Li + Liz Xiong