Turning Point

video installation, animated loop full HD, 2012

Seemingly banal situation: a white point visible on a black screen moves with recurrence along a segment. Over time, however, the animation reveals the true nature of this movement. It turns out that the point lies on the circumference of a circle, which rolls inside a circle with a diameter twice as long. It is, therefore, a direct translation of circular motion into rectilinear motion, which contradicts our common intuitions. Yet we must bear in mind that our intuitions evolve as knowledge advances: "What man sees depends both upon what he looks at and also upon what his previous visual-conception experience has taught him to see" (Kuhn, *The Structure of Scientific Revolutions*).

Mathematical note: The curve drawn by a point lying on the circumference of a circle that rolls without slipping inside a larger circle is called a hypocycloid. It can take various shapes, but only in this one case, where the outer circle has twice the diameter of the inner circle, is the hypocycloid reduced to a segment – the diameter of the outer circle.

Historical note: The analysis of this particular case of the hypocycloid helped Galileo identify the errors contained in Aristotle's description of motion and, consequently, make an important step on the road to modern physics.