Motion Picture Origins

Shadow Play
Motion Picture Origins

What do we need to make moving pictures work?
Two Necessary Illusions

1. **Persistence of vision** – The tendency of the retina to retain an image for a fraction of a second after the light source is gone.
Two Necessary Illusions

1. **Persistence of vision** – The tendency of the retina to retain an image for a fraction of a second after the light source is gone.

2. **Beta Movement** – The perception of sequential discrete images as a single moving image.*

* Sometimes referred to as the “phi phenomenon.”
Beta Movement
Beta Movement
Sequential Photographs
Basic Requirements

• Illusion of motion
Basic Requirements

- Illusion of motion
- Projection
Basic Requirements

- Illusion of motion
- Projection
- Photography
Illusion of Motion

Mechanical Toys/Devices
Illusion of Motion

Mechanical Toys/Devices
Illusion of Motion

Stroboscopic Toys
Illusion of Motion

Stroboscopic Toys

- Thaumatrope
Illusion of Motion

Stroboscopic Toys

• Thaumatrope
• Phenakistoscope
Illusion of Motion

Stroboscopic Toys

- Thaumatrope
- Phenakistoscope
- Zoetrope
Illusion of Motion

Stroboscopic Toys

- Thaumatrope
- Phenakistoscope
- Zoetrope
Illusion of Motion

Stroboscopic Toys

• Thaumatrope
• Phenakistoscope
• Zoetrope
• Praxinoscope
Basic Requirements

- Illusion of motion
- Projection
- Photography
Projection

- Magic Lantern
  Athanaseus Kircher
  “Ars Magna Lucis et Umbrae” (1646)
Projection

- Magic Lantern
  Athanasius Kircher
  “Ars Magna Lucis et Umbrae” (1646)

19th century version of the Magic Lantern
Projection

- Magic Lantern
  Athanaseus Kircher
  “Ars Magna Lucis et Umbrae” (1646)
Projection

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Basic Requirements

- Illusion of motion
- Projection
- Photography
Photography

*Camera Obscura*
“Dark Room”
Described by Leonardo da Vinci in 1490
Term was first used by Johannes Kepler in the early 17th century
Photography

• Joseph Nicephore Niepce
Photography

- Joseph Nicephore Niepce
  First fixed (permanent) photographic image (1826)
Photography

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- Louis Daguerre
Photography

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- Louis Daguerre
  Daguerreotype (1839)
Photography

- **Joseph Nicephore Niepce**
  First fixed (permanent) photographic image (1826)

- **Louis Daguerre**
  Daguerreotype (1839)

- Daguerreotype of Edgar Allan Poe
Basic Requirements

- Illusion of motion
- Projection
- Photography
Motion

Projection

Projected Motion
Projected Motion

Franz von Uchatius
“Lantern Wheel of Light” (1845)
Franz von Uchatius
“Lantern Wheel of Light” (1845)
Motion

Photography

“Moving” Photographs
Motion

Photography

“Moving” Photographs
Eadweard Muybridge
“Moving” Photographs
Eadweard Muybridge

1872
“Moving” Photographs
Eadweard Muybridge
Basic Requirements

- Illusion of motion
- Projection
- Photography
Basic Requirements

- Illusion of motion
- Projection
- Photography
  - Flexible film stock
Flexible Film Stock
Flexible Film Stock

- John Wesley Hyatt
  Developed celluloid (1869)
Flexible Film Stock

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- Hannibal Goodwin
  Develops transparent, flexible film using celluloid (1887)
  Filed for patent, but patent not granted until 1898
Flexible Film Stock

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• George Eastman
  Introduces and markets celluloid film (1889)
Projection
Magic Lantern

Projection of Apparent Motion
Uchatius

Stroboscopic Toys
Thaumatrope, Zoetrope, etc.

Multiple Sequential Photographs
Muybridge

Motion Pictures
Edison

Photography
Niepce, Daguerre

Celluloid Film
Eastman

Celluloid Film
Eastman
Projection
  Magic Lantern

Stroboscopic Toys
  Thaumatrope, Zoetrope, etc.

Photography
  Niepce, Daguerre

Celluloid Film
  Eastman

Multiple Sequential Photographs
  Muybridge

Motion Pictures
  Edison

Projected Motion Pictures
  Louis & Auguste Lumiere

Projection of Apparent Motion
  Uchatius