

Harold 'Doc' Edgerton

(1903-1990)

Institute Professor MIT

Photography –strobe, high speed...

Analysis of motors, bombs, human actions..

Experimenting and Teaching
play, joy and 'failure' incites
discovery and curiosity



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Edgerton Center

Jim Bales

Edgerton Student Shop



Alva Couch

Philip Morrison

(1915-2005)

Institute Professor MIT

Physics, Nuclear physics, Astrophysics

Eloquent and insightful passion for science

Public Science Education

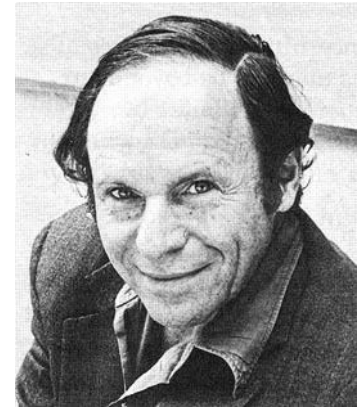
PSSC, ESS, African Primary Science, Zap!...

Scientific American book reviews; Exploratorium museum

Powers of Ten 1968/1977 with Charles & Ray Eames

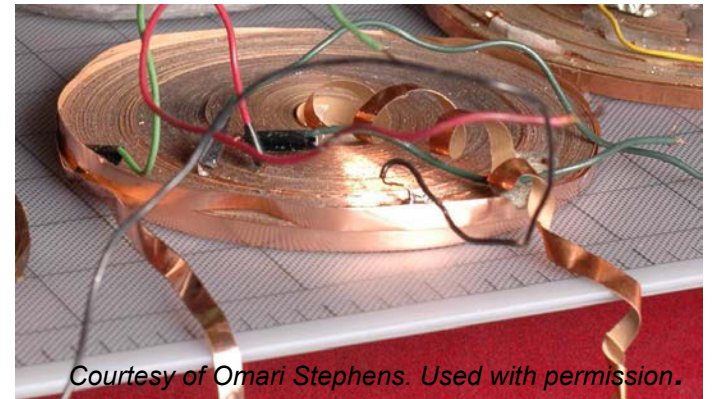
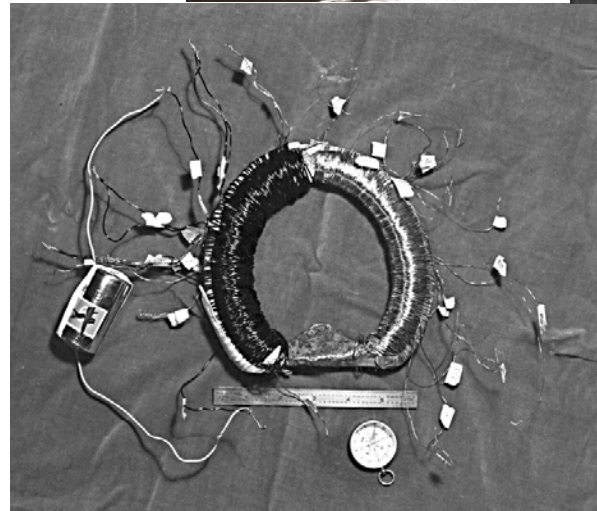
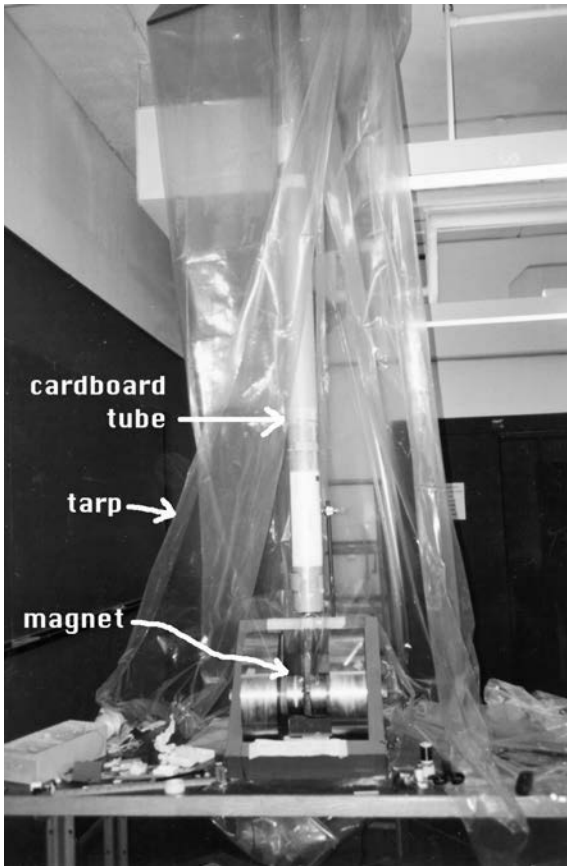
The Ring of Truth 1987

“To paint the floor, to build a kite, to study arithmetic and geometry, not with symbols alone but with rods and string and paper, to cook for a dozen at table, safely to move a piano or a sand grain... to open yourself to new experiences, not carefully worked out by others, allowing time and concerted attention enough to permit explorative trial...” 1985



Courtesy of wikipedia.org

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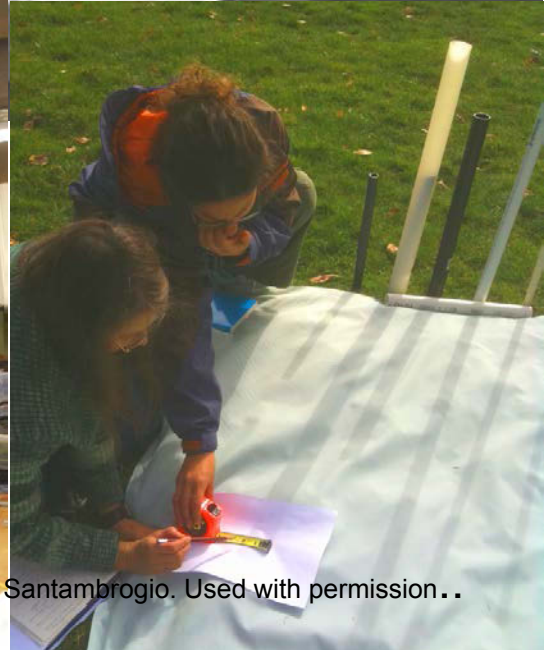
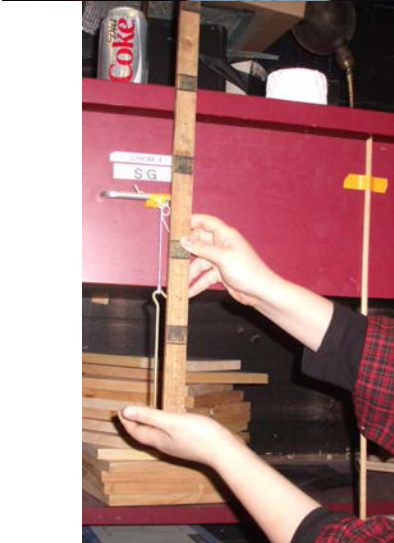




Courtesy of wikipedia.org

critical exploration

Duckworth 2005, 2001, 1999, 1991
Inhelder, Sinclair, Bovet 1974
Piaget 1926



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Galileo Studies

Le Opere di Galileo Galilei 20 volumes, edited by Antonio Favaro (1890-1909 on-)

Stillman Drake (1910-1993): English translations; demonstrated that Galileo developed his understandings through experiment, refuting prevailing scholarship that claimed Galileo never did any experiments.

Thomas Settle: *Science* 1961 His student project redid Galileo's inclined plane experiment. Experiment reconstructions and exploratory experience.

John Paul II: 1979 authorized a study of the Galileo Affair; 1992 statement on faith and science.

Other responses and contributions

Bertolt Brecht (1898-1956) *Life of Galileo*, 3 versions

Giorgio de Santillana MIT (1902-1974) “Galileo and Oppenheimer” 1957

Albert van Helden *Invention of Telescope* 1977; Galileo Project online

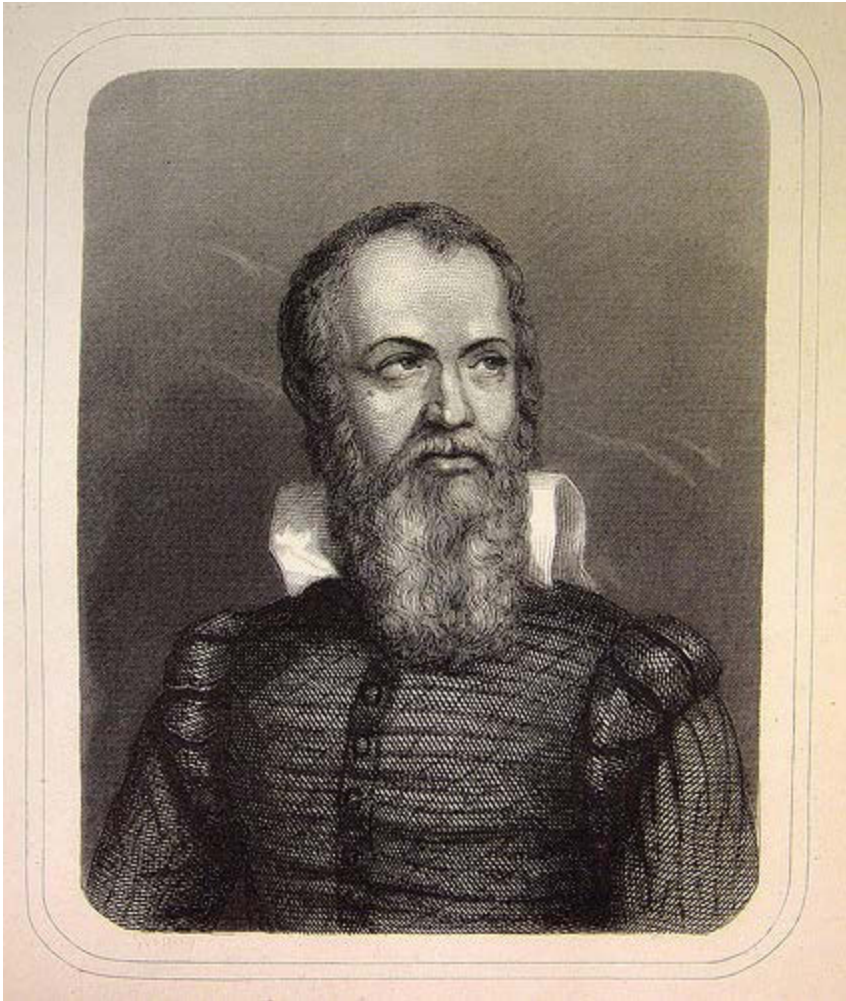
Mario Biagioli (formerly Harvard) *Galileo Courtier* 1993, ...

Dava Sobel *Galileo's Daughter* 1999

Maurice Finocchiaro translated Trial documents; *Retrying Galileo 1633-1992* 2005

Institute and Museum of the History of Science, Florence: Museum exhibits;
online materials

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Galileo Galilei

(1564-1642)

Father Vincenzo, music experiment and theory

Studied medicine, math at University of

Pisa and privately. Did not earn a degree.

Taught math at University of Pisa, then at

University of Padua in Republic of Venice,

experimented with motion, mechanics

1597 invented compass; floating experiments

1580s-1600s motion & pendulum experiments

1609 developed astronomical telescope

1610 *Sidereus Nuncius* telescopic discoveries

Return to Florence under Grand Duke

1613 *Sunspots Letters* published

1616 Rome declares Copernicanism heretical;

Galileo warned.

1622 *The Assayer*; elected to Design Academy;

his patron becomes Pope Urban VIII

1632 *Dialogue on Two World Systems*

1633 Trial: conviction, abjuration; life arrest

1638 *Discourse on Two New Sciences*; blind

Giotto

Confirmation of Rule of St. Francis 1325, Florence, Santa Croce chapel



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Tommaso Massacio

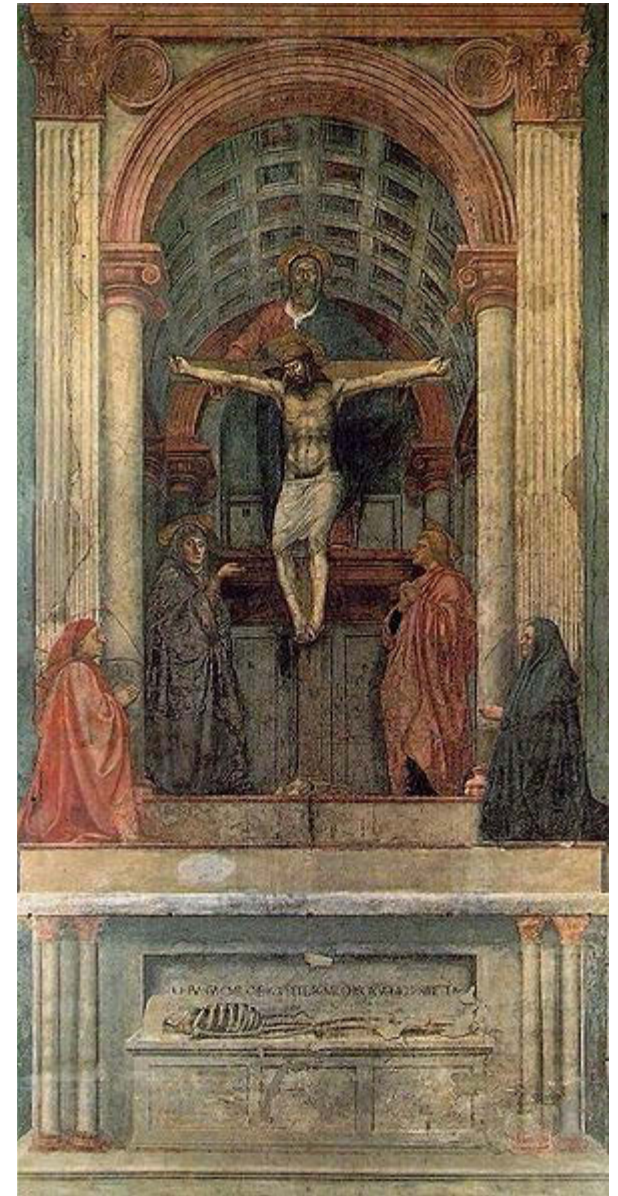
Trinity, 1425-8

Santa Maria Novella

Florence



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Lorenzo Ghiberti
Jacob and Esau, 1435
Baptistery, Florence



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(<http://www.flickr.com/photos/taporto/559501391/>)



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**Activity with sighting,
estimating and recording relationships of size and position
with picture frames, frames, scenes**

MIT OpenCourseWare
<http://ocw.mit.edu>

EC.050 Recreate Experiments from History: Inform the Future from the Past: Galileo
Januray (IAP) 2010

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