

**Ethical Paradoxes of Control: Science, Engineering, and
the Expansion of Moral Responsibility**
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Devices for Control: Science and Engineering

Control as Power Over

Tools and Enablers: Science, Engineering, Technology (SET)

Social Control: SET and “the State” – Investments lead to payoffs, diminished human toil and suffering: Pasteur’s Quadrant

View in this Presentation

SET provide “answers” raising further ethical problems; as human agents the problem solvers are called to account – the ethical paradox of control.

Spoiler Alert: Overcoming the Paradox

Broadening the constituencies “in control.”



Devices for Control: Science and Engineering

An Idiosyncratic History of Western Science, Engineering, and Technology

Role of Patronage

Paradox of Expertise: Worship and Feet of Clay

- Egypt and the Pyramids
- Archimedes
- Galileo
- Pasteur

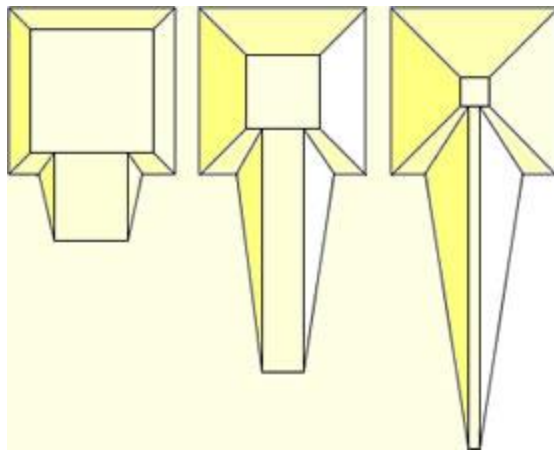


Egypt and the Pyramids

c. 2000BC

What kinds of ramps did Egyptians use to build the pyramids? Considerable controversy about the answer to this question exists. Diagrams and further information can be found at:

http://en.wikipedia.org/wiki/Egyptian_pyramid_construction_techniques



Egypt and the Pyramids

c. 2000BC



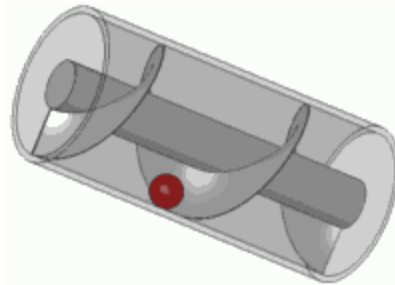
“Your people will remember you for the money you saved them by not building a pyramid.”



Archimedes' Screw

c. 200's BC

A device with a revolving screw-shaped blade inside a cylinder. Turned by hand, it could also be used to transfer water from a low-lying body of water into irrigation canals. It is still in use today for pumping liquids and granulated solids such as coal and grain.



SS Archimedes and Screw Propeller

Launched in 1839



Galileo

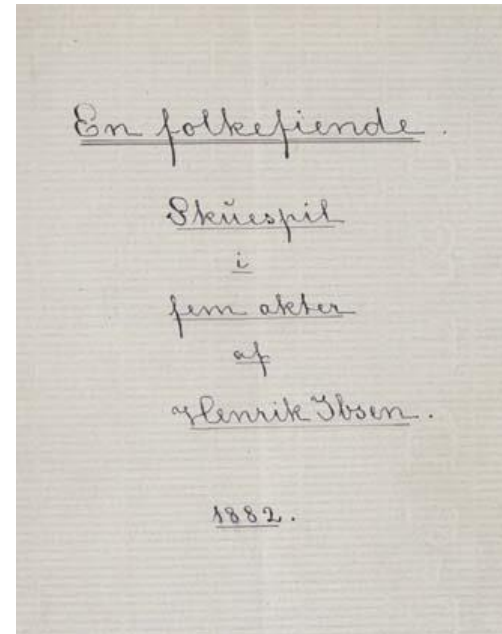
late 16th early 17th centuries AD

Galileo's geometrical and military compass,
thought to have been made c. 1604 by his personal
instrument-maker [Marc'Antonio Mazzoleni](#)



Louis Pasteur (1822-1895)

- **Public Acceptance: Micro-organisms have a role in contamination and disease.**
- **Popular Recognition:**
 - Henrik Ibsen, *An Enemy of the People*, 1882
 - Staged in 2013 in Cairo, Lisbon, and London.
 - Is it a satire of democracy and its failings?



Ethical Conundrums

- **The Role of Scientific Evidence and Probabilities**
 - How safe is safe enough? What dimensions of risk are included?
 - Who should decide?
- **The Need for Collective Responsibility**
 - Who should decide?
 - Who pays? Who benefits? Who should?
- **Requirements for Negotiation**
 - Who gets to sit at the table?
 - What are the decision rules? Who has agreed to them, under what conditions?
- **Paradox: Increased Knowledge, Increased Possibility of Control, Increased Demand for Human Responsibility, Increased Requirement for Social not just Individual, Action**



Ethical Conundrums

- **Control and Lack of Control**
 - Purposes – Virtuous and Vicious
 - Humanitarian Assistance
 - Surveillance and Individual and State Control
- **The Technological Treadmill – Running Faster to Stay in the Same Place**
- **Accelerating Human Demands for Control and Responsibility**
- **Approach: Institutional Innovations**
 - Legitimate expectations
 - Feasible control
 - Due care
- **Standards for Assessment**
 - Standards of competence
 - Limiting catastrophes
 - Developing trustworthy institutions



Reconciling Technical and Social Controls

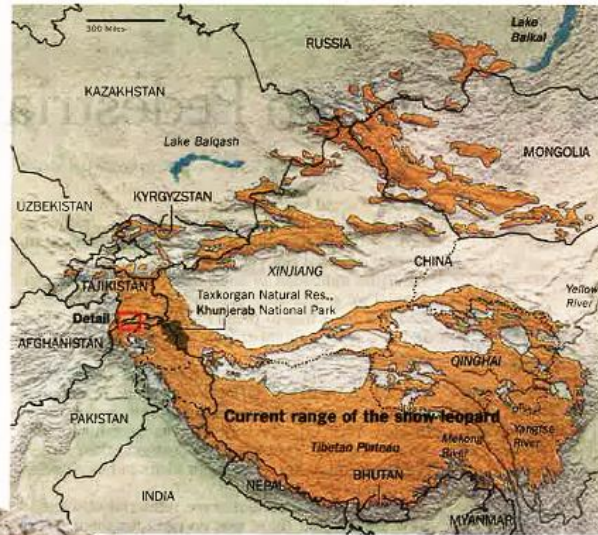
Elusive Cats and Their Forbidding Home

Little is known about the snow leopards' world. They sparsely inhabit a vast, mountainous region that is very difficult for researchers to explore.



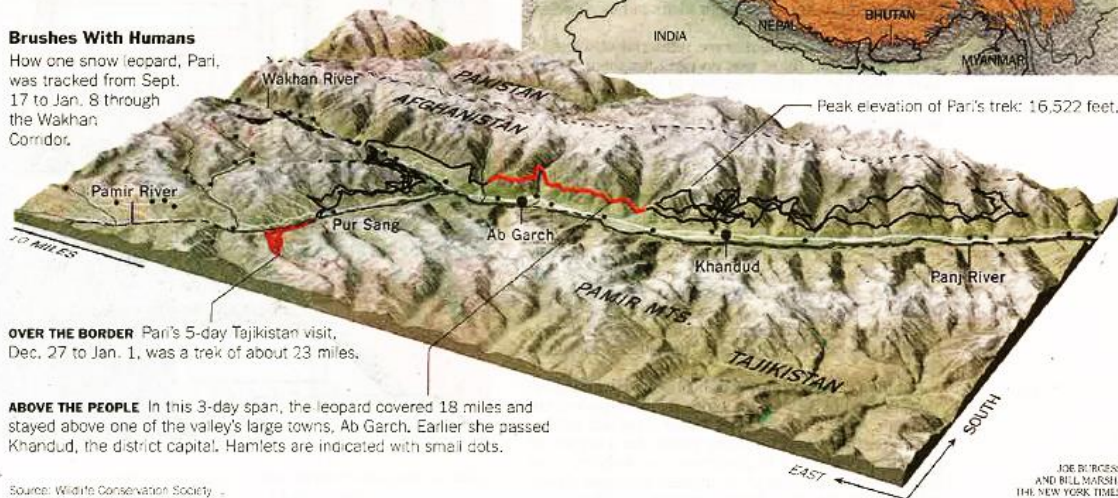
A 2-year-old snow leopard.

GERRY ELLIS/MINDEN PICTURES VIA CORBIS



Brushes With Humans

How one snow leopard, Pari, was tracked from Sept. 17 to Jan. 8 through the Wakhan Corridor.



OVER THE BORDER Pari's 5-day Tajikistan visit, Dec. 27 to Jan. 1, was a trek of about 23 miles.

ABOVE THE PEOPLE In this 3-day span, the leopard covered 18 miles and stayed above one of the valley's large towns, Ab Garch. Earlier she passed Khandud, the district capital. Hamlets are indicated with small dots.

Source: Wildlife Conservation Society

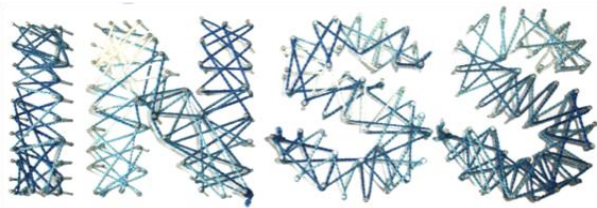
JOE BURGESS
AND BILL MARSH
THE NEW YORK TIMES



Social Sustainability

Human Welfare Including Community, Quality of Life, Social Justice, Democratic Process, Education, and Health and Safety

Information available in the Online Ethics Center at www.onlineethics.org/Topics/Enviro/28051.aspx and <http://clas-pages.uncc.edu/inss/>



**Integrated Network for
Social Sustainability**

