

# APPROACHING Kuhn

- Kuhn'S APPROACHES TO SCIENCE

- Kuhn AND OTHERS ON SCIENCE

- Kuhn AND CRITIQUES OF SCIENCE

- THE ROAD SINCE STRUCTURE

# APPROACHING Kuhn

perspectives for a  
philosophy of science

# Perspective

a way of regarding (something, here science)

where the picture appears distorted, confused, **anomalous**

*except from one particular point of view*

# Philosophy and/ of science – ways and ways

- Broader implications of science
- Presuppositions and predispositions of scientists - **SOCIOLOGY**
- Clarification of the concepts and theories of the sciences
- How science ought to be done

# Kuhn's approaches to science

“History, if viewed as a repository for more than anecdote or chronology, could produce a decisive transformation in the image of science by which we are now possessed.”

# A new historiography

- A role for history as more than a dead record
- Discovering internal coherences ↔ listing new discoveries
- Rupture ↔ continuity/ progress/ cumulation
  - The influence of social context?  
[The interpretation of SSK]

# Implications of a new historiography for understanding SCIENCE PER SE

- A life to science outside of visible activity
- Insufficiency of methodology
- Presence of an arbitrary element NOT IN THE PRACTICE OF NORMAL SCIENCE but in its past

[here Kuhn separates from

- other philosophies of science
- an understanding of science as critical and dynamic
- Sociology of scientific knowledge]

Normal science

Paradigmatic/  
mature  
science

Revolutionary  
science

Normal science

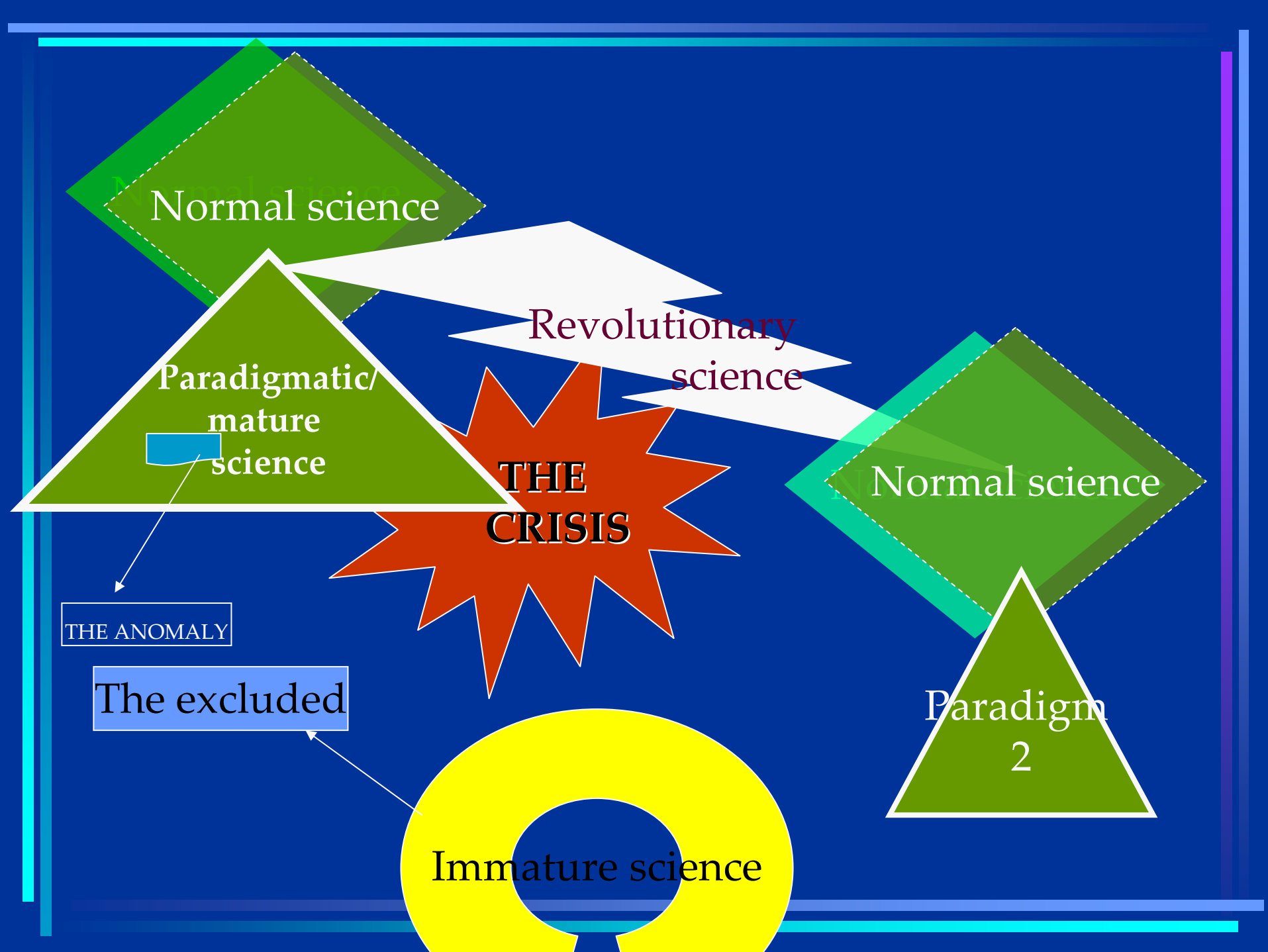
**THE  
CRISIS**

THE ANOMALY

The excluded

Paradigm  
2

Immature science



# NORMAL SCIENCE

- Springing from a concrete scientific achievement
- Coherent but porous community
- Horizontal spread
- Agreement over fundamentals
- Cumulative
  
- CREATIVITY – YES
- CONTRIBUTION – YES
- A[n immature] PAST? YES [Latour]
- STABILITY? YES
- A FUTURE? YES – THE **PARADIGM**

# PARADIGMATIC SCIENCE

- Fencing in
- Closed community
- Institutionalisation
- Rigid parameters
- Vertical depth
- textbook → journal
- Intelligible, and creative → esoteric
  - In case of doubt, consult [phdcomics.com](http://phdcomics.com)

# Paradigms as prisons?

- Exemplar/ model
- Association
- Coherence
- Rules not always visible, or well-defined

# Experiment and theory in paradigmatic science

- Determination of significant facts
- Matching facts with predictions of paradigm theory
- Articulating paradigm theory – constants, laws, alternative uses, new applications

**Trying to find points of contact between theory and nature –**  
problems of application

Any absence of  
correspondence is anomaly

Is this crisis?

Does science not *look for* the non-fit?

Is the scientist not by definition the critical thinker?

Is that not how better theory is born?

- Paradigmatic science looks for novelty [in results]
- Not **unexpected** novelty

# Rules materialize

Curiosity in problem-choosing  
restricted to those puzzles assumed

- to have solutions within the paradigm
- To have rules for solving them
- To have a limited nature of acceptable solutions

# Paradigm shifts/ paradigm debates

- A change in interpretation of fixed data?
- A cumulative progress toward truth?
- A moment of possession? A gestalt switch?
- But can the scientist switch back again?

# Implications for a 'real world'

- Understanding scientific revolutions
  - Rejection/ reconstruction of a scientific theory
  - Shift of problems for a scientific community
  - Shift of validation of legitimate problems
  - Shift in world-views, not addition of information [**perspective as philosophy**]

# Implications for 'immature' sciences

- Function of the anomaly
- The mature and the normal

# KUHN AND OTHERS on the philosophy of science

- On the criticality of science
- On the function of the anomaly – between the bizarre and the normal
- From anomaly to crisis
- On practice

# Kuhn and later

- In history
- In SSK – from science-as-knowledge to science-as-practice
- In social science methodologies

# Legacies ... appropriations

- History of science
- Sociology of science
- Separations

# History

- Ruptures
- Externalist

## **IMPLICATIONS FOR SCIENCE?**

[special relevance for histories of science in India – postcolonial, postmodern]

# Implications of HISTORIES OF SCIENCE IN INDIA

- Plea for Needhamian history-writing
- Plea for pluralism
- Plea for situated universality
- Comment on the 'failure' of science in India

# Sociology of scientific knowledge

- A real world? “scientists do not see something *as* something else; they simply see it”
- The influence of the external
- Science and politics
- Science-as-knowledge to science-as-practice

# Separations

- The 'immature' social sciences