

SCIENCE AND LITERATURE

Coordinator: John Gillespie

Scientific advances generate social and ethical issues that have informed literature from the time of the Faust legend to the present post-nuclear era. This literature (novels, plays, films, operas) enriches the public's understanding of science, while inspiring reflection on its moral implications and on the future of humankind. Among the works we consider are *Galileo*, *Copenhagen* and *The Man Who Mistook His Wife for a Hat*. Included in our considerations are dramatic current advances in the domains of artificial intelligence, genetics, and medicine and exploration of life elsewhere in the universe. The political, cultural and ethical context of future scientific research is considered; it will certainly be reflected in future literature. During our discussions, we examine the science for each of the disciplines. This study group was offered in 2015.

Readings and other Required Materials:

Books

Any editions of these works are acceptable; all are available, new and used, at Amazon, Strand, Barnes and Noble, etc. Free, complete texts of the Lightman and Wells works are available on the Internet.

Galileo by Bertolt Brecht

Copenhagen by Michael Frayn

In the Matter of J. Robert Oppenheimer by Heinar Kipphardt, translated by R. Speirs

Einstein's Dreams by Alan Lightman

The Man Who Mistook His Wife for a Hat by Oliver Sacks

Frankenstein, or the Modern Prometheus by Mary Shelley

The Time Machine by H.G. Wells

Films for home viewing (available on Netflix, Amazon Rental & YouTube, at NYPL)

Copenhagen (BBC)

Ex Machina

Frankenstein (Karloff)

The Time Machine

Voyage to the Moon

The study group Web site includes supplemental materials for viewing, downloading and printing. Internet use is required for the study group.

Astrophysicist **John Gillespie** taught at CUNY and in France. His current interests include human rights, music studies at Juilliard, and the interface of science and society.

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Week 1. Science, *Galileo*

- What is science? Literature?
- Faustian mythology, Prometheus legend
Exchange of integrity for knowledge
- Science in social, political, religious contexts. Sources of authority.
- Discussion; Brecht's *Galileo*: Historical background, religious context.

Week 2. *Galileo*

- Cosmology, astrology, astronomy, physics of Galileo's era
- Alternative models: Ptolemy, Copernicus
- Invention of the scientific method: hypotheses, observation

Week 3. *Frankenstein*

- Shelley's *Frankenstein*: the first science fiction novel, the enduring mythology.
- The mad scientist image through the centuries.
- Biology of the era: Galvanism. What is "living"? Exobiology.
- Moral, human consequences of research.

Week 4. *Frankenstein*

- Frankenstein the novel:
- Literary, cultural, scientific context

Week 5. *Copenhagen*

- Ethics and responsibility in the atomic era: post-Hiroshima theater
German postwar theater: Dürrenmatt, Kipphardt, Hochhuth

Week 6. *Copenhagen*

- Historical context of *Copenhagen*: Germany, Denmark, US, WWII
- Analysis of the play: theatrical strategies, character analysis
- Uncertainty as cultural, psychological concept

Week 7. Development of Nuclear Weapons

- Basics of atomic and nuclear physics: energy, weapons
- Context: HUAC, McCarthy era; Los Alamos, Livermore, German research
- The players: Oppenheimer & Teller; Groves.

Week 8. Oppenheimer

- Close reading: *In the Matter of J. Robert Oppenheimer*
- Videos: nuclear explosions; interviews Teller and Oppenheimer
- Opera: John Adams: *Dr. Atomic* (to be shown in class)
- Weapons of annihilation: political, ecological contexts

Week 9. Space & Time

- Space, time, relativity in science, philosophy and literature
- Basics of relativity
- *Einstein's Dreams* excerpts

Week 10. Time in Literature

- Examples: novels, plays, films
- Close reading of *Time Machine*, discussion of film
- Reality, fantasy: vanishing frontier

Week 11. Consciousness, Artificial Intelligence

- Elements of neurology, brain, consciousness
- Artificial Intelligence (discussion of film *Ex Machina*)

Week 12. Normality, madness, psychiatry

- Ethics of patient as subject, as literary figure
- Whose reality?
- Readings from *Man Who Mistook His Wife as a Hat*