Reading Questions for Nov. 19-26

Tues. 11/19: Galileo and the Church
Read: Boorstin, 322-327 (chapter 41); Galileo, 173-216.

1. According to Boorstin, what was the reason that Galileo was accused of heresy in 1515-16 and then tried and condemned in 1633? What does Boorstin imply about the relationship between scientific investigation and religious belief?

2. Read Galileo, 175-179. How did Galileo characterize his opponents? What motives for attacking him did they have, in his opinion?

3. In Galileo, read the paragraph that starts at the bottom of p. 180. Did Galileo think that the Church had no right to question the orthodoxy of his beliefs? He claimed that his “sincerity will make itself manifest.” Do you think he really was sincere?

4. Read Galileo, 181-182. According to Galileo, why does Scripture sometimes say things that seem to be untrue?

5. Read Galileo, 182-186. Why does Galileo think that Scripture, properly interpreted, cannot contradict what can be learned from the study of Nature? Why does Galileo conclude that “the Holy Ghost did not intend to teach us” the nature of the physical world (185)?

6. Read Galileo, 199-202. According to Galileo, why does Scripture speak as if the earth were stationary? What would simple folk think about Scripture if it claimed that the earth moves?

7. Finish reading Galileo. The passage in Scripture that caused Galileo the most trouble was Joshua 10.12-13:
   12 Then spake Joshua to the Lord in the day when the Lord delivered up the Amorites before the children of Israel, and he said in the sight of Israel, Sun, stand thou still upon Gibeon; and thou, Moon, in the valley of Ajalon.
   13 And the sun stood still, and the moon stayed, until the people had avenged themselves upon their enemies. Is not this written in the book of Jasher? So the sun stood still in the midst of heaven, and hasted not to go down about a whole day.

How did Galileo think that this passage should be interpreted? Why did he think that it was easier to explain from a Copernican standpoint than a Ptolemaic standpoint?

Thurs. 11/21: Printing and the dissemination of knowledge
Read: Boorstin, 480-538 (chapters 60-66).

1. Why were artificial systems of memory used by ancient and medieval scholars? How did the advent of the printed book affect the way that Europeans thought about memory?

2. How did printing with movable type develop in East Asia? What were some of the technical problems that Asian printers faced, and how were they solved? What social function did printed works serve in Asian countries?

3. What technical challenges did Gutenberg face when developing movable type for the Roman alphabet? How did he solve them?

4. How much work would it take to print one copy of a book, versus copying out one copy by hand? Is printing efficient for small numbers of copies? How did printing turn knowledge into a commodity that had to be marketed?
5. How did printed books help to standardize the European vernaculars? What were the limits of this standardization? Who was able to use printed books? Note: before the invention of the rotary steam press in the early nineteenth century, printed books were still relatively expensive, though usually much cheaper than manuscript books.

6. How did printed books help to preserve and disseminate errors?

Tues. 11/26: The discovery of the human body

Read: Boorstin, 338-383 (chapters 44-49); review Aristotle, 76-114 (selections from De Anima, Parts of Animals).

1. How does Boorstin portray the state of medical knowledge at the beginning of the sixteenth century? What was the orthodoxy against which Paracelsus struggled?

2. On p. 347, Boorstin notes that Galen’s works were restored to the West relatively late and claims that “the printers who merchandised these texts [printed works of Galen] by the thousands reinforced the Galenic orthodoxy.” Yet Andreas Vesalius (chapter 46) published his path-breaking work on human anatomy in 1543, not very long after Galen was first printed. Some scholars (for example, Vivian Nutton) have suggested that the revival of Galen was a critical factor in the development of modern anatomy, because Galen made anatomy respectable and because his works provided a standard against which anatomical dissections could be measured. Which interpretation do you find more convincing, and why?

3. Why was the printing press important for the dissemination of Vesalius’s anatomy? What would have happened had Vesalius been forced to transmit his ideas only through manuscript drawings? How many times could a picture be copied without making a mistake?

4. Where did the blood come from in Galen’s physiology? How did the veins function, and what did the arteries do, according to Galen? (You may want to review McClellan and Dorn, 91 and the figures on 92).

5. How did William Harvey demonstrate that the blood circulates from the heart through the arteries, then back through the veins to the heart? Did he observe the capillaries that connect the arterial and the venous systems? What role did quantitative measurement play in his demonstration?

6. How did microscopic observations help seventeenth-century anatomists better understand the structure and function of the organs?

7. Boorstin criticizes Galen for basing his anatomy on that of the ape, but praises Malpighi and others for their use of comparative anatomy to understand physiological processes. Does Boorstin contradict himself?