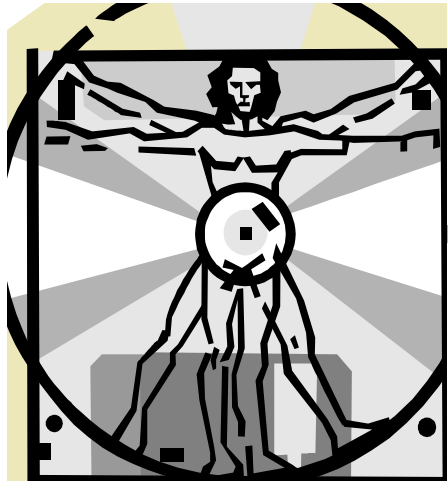
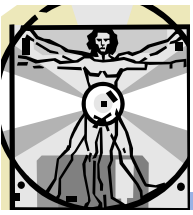


History & Philosophy in the Study of S&P



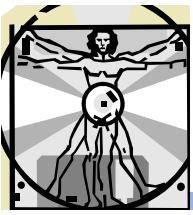
It all starts with the problem
of knowledge...



Why Study History?

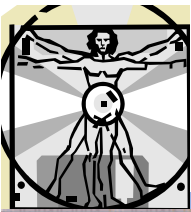
- History of a topic does not equal the topic
- Teaches us at least three things:
 - ❖ **Questions:** How people view the world, and questions they asked about it
 - ❖ **Methods:** How people tried to answer these questions
 - ❖ **Answers:** Results of those studies (conclusions they came to)

http://ancienthistory.about.com/library/bl/bl_time_philosophers.htm



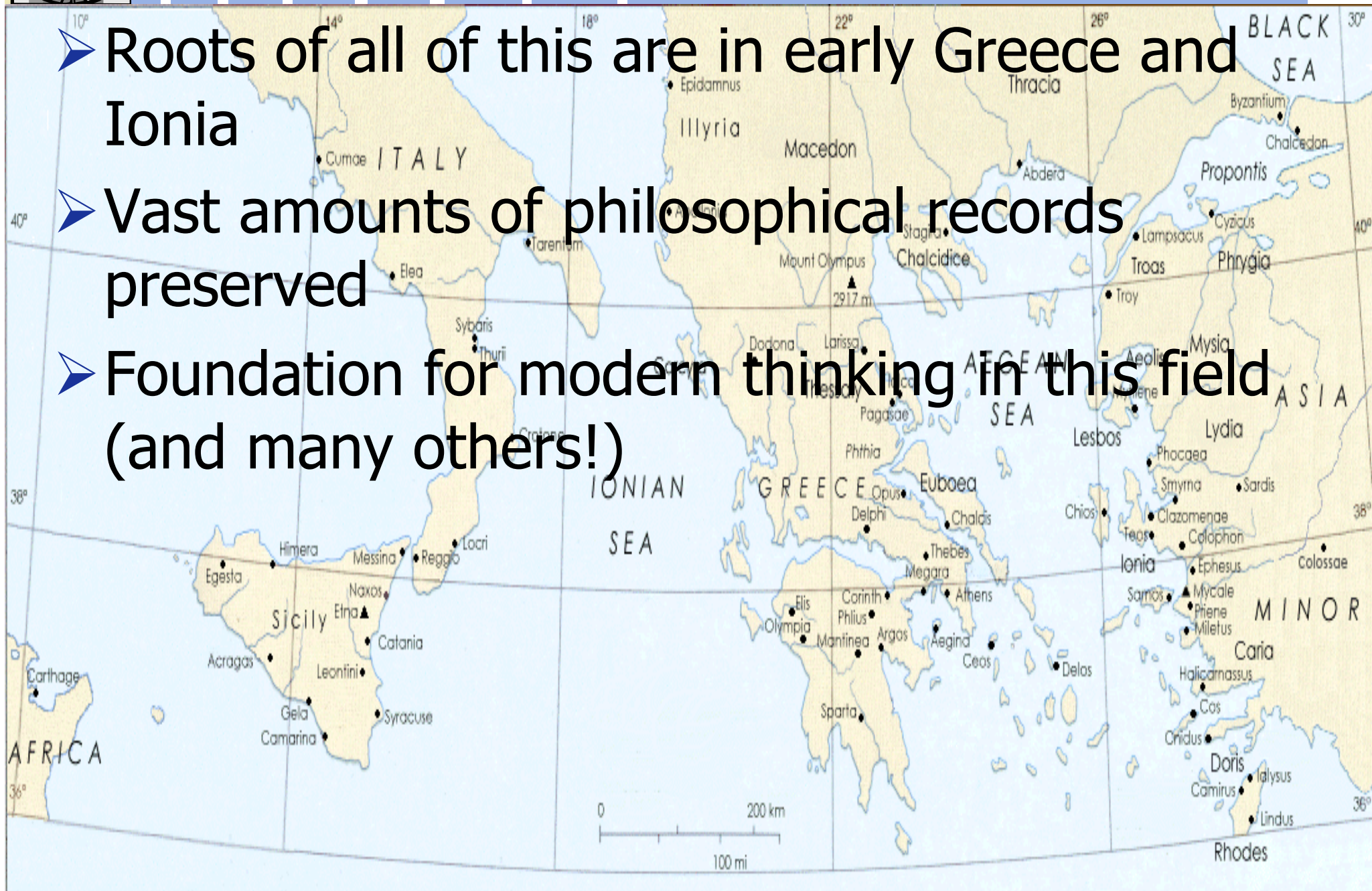
The Problem of Knowledge

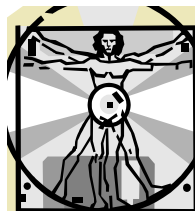
- How can we specify what is knowable without implicitly claiming to know it?
- How can we sincerely claim to search for what we have not identified as knowable (or findable)?
- How, in the end, can we ever be sure we know anything?



The Greeks

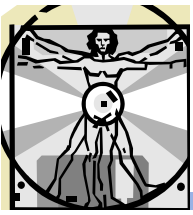
- Roots of all of this are in early Greece and Ionia
- Vast amounts of philosophical records preserved
- Foundation for modern thinking in this field (and many others!)





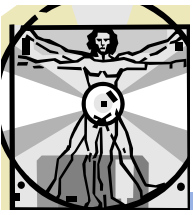
Greece





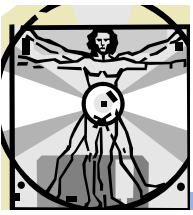
The Pre-Socratics: Ionians

- Parmenides, Pythagoras, Anaxagoras, Anaximander, Heraclitus
- Question: How is it that anything exists?
- Method: Theoretical and numerical relationships
- Answers: Human senses are confined to the realm of appearances, what is true lies beyond the capabilities of the senses



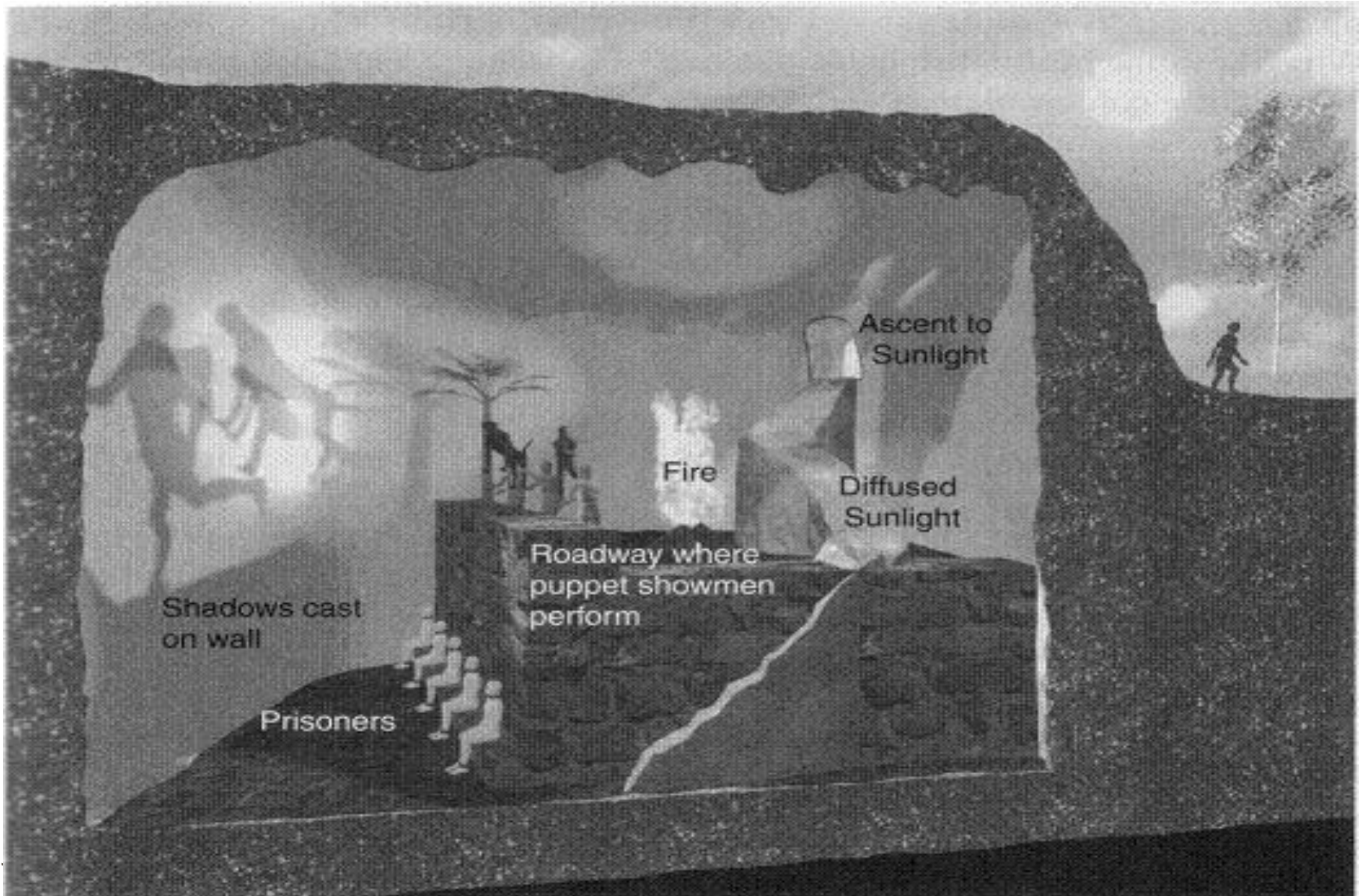
Socrates

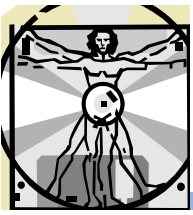
- “Knowledge does not consist in impressions of sense, but in reasoning about them”
- Memory: experiences are recorded on something like wax impressions
 - ❖ Durability depends on frequency of impression (associationism) and on the purity of the wax (hereditary differences)



Plato

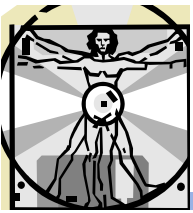
- Cave illusion: perception and life goals interact





➤ Rationalism

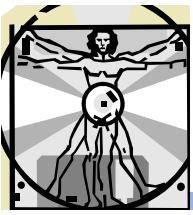
- ❖ True knowledge comes from reasoning about the senses
- ❖ *“...in the world of knowledge the idea of good appears last of all, and is seen only with an effort...this is the power upon which he who would act rationally, either in public or private life must have his eye fixed...” The Republic*
- ❖ Note: Still a reliance on the senses; but knowledge does not stop at sensing



Aristotle

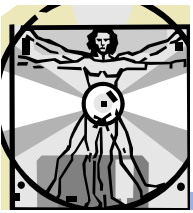
- Student of Plato at the Academy
- Moved on, founded Lyceum
- Phase 1: senses respected, ideas still reign
- Phase 2: sensation (observation) critical for discovery

- Soul is derived from the study of the body
- Note: soul does not equal mind



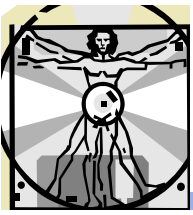
Aristotle, cont' d

- Four body functions:
 - ❖ Nutritive
 - ❖ Perceptive
 - ❖ Locomotor
 - ❖ “Universalizing” (abstracting--humans only)
- 5 senses + 6th “sensus communis”
 - ❖ (a central executive)
- Q: How does perception lead to thinking?
- M: Reasoning, some observing
- A: Perceptions set up “vibrations” of the soul

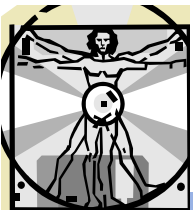


Hippocrates

- Reliance on observation and empirical method
- Make the most of the sensory input
- Medical discoveries came from keen observations



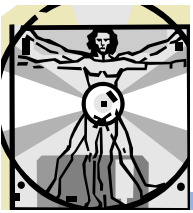
- The Scientific Alternative
- Q: How does this “machine” (body) work?
- M: Anatomy, dissection, functionalism
- A: Not “tabula rasa”; rather, we are born with instincts that affect what we learn
 - ❖ Nature and nurture



Christian Era

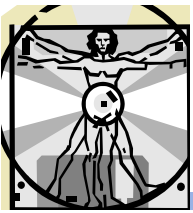
- Augustine: examine nature only to find proof of the existence of God
- Q: Is there a God? Are we created by God?
- M: Casual observations, but not of humans (why?). Generally anti-intellectual
- A: non-sensing inner awareness of “truth”, right/wrong, personal identity
 - ❖ Not perceptual

- Note: “tactile-vision” theory; remnant of Aristotle and Epicureans



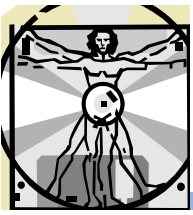
Middle Ages

- Mostly religious
- Not interested in questions of perception
- Relied on faith (not even on reason)



(Modern) Empiricism

- The Authority of Experience
- Q: All questions are “valid”, from:
 - ❖ How do we function, feel, perceive?
 - ❖ Why, for what?
- M: “Scientific scholarship” (Francis Bacon)
 - ❖ Observation, evidence of senses is primary data of all knowledge; evidence required before knowledge can be developed
 - (differs from Rationalists)
- A: Mind must be pre-organized to make sense of all the perceptions
 - ❖ (Confirmed by modern science??)



More Empiricists

➤ John Locke

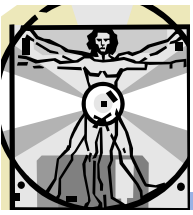
- ❖ Q: What is human understanding?
- ❖ A: Sensation & reflection are source of all ideas

➤ George Berkeley

- ❖ A: Experience affects how we interpret our sensations
 - (Top-down influences on perception)
- ❖ New Theory of Vision

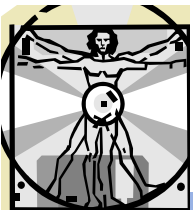
➤ Thomas Reid

- ❖ Very practical
- ❖ A “common sense” (modern definition)



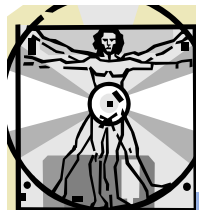
Rationalism

- Q: how do we work? How does sensation, perception, thinking, living work?
- M: “we can only understand something when we can supply the reason for it being what it is”
 - ❖ Limited to thought, proofs
- A: We have innate ideas
 - ❖ There are also eternal truths that we may never know
 - ❖ Perception based on geometric calculations of eye angles, triangular convergence, etc.



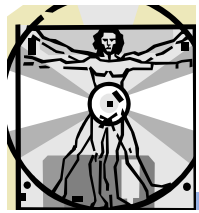
Materialism

- “The Enlightened Machine”
- Q: Separate spirituality from psychology & science
 - ❖ Don't deny existence of either, though
 - ❖ Then: how does this machine work?
- M: Metaphor of a machine
 - ❖ Perception can be used to study perception!
- A: Perception is a process of the brain
 - ❖ No ideas are innate
 - ❖ All ideas enter mind through observation (sensation) and tradition (memory)



Modern Science Approaches

- Next few classes...
- What do you think the Questions, Methods, and Answers/Conclusions are for the modern study of sensation and perception?



Upcoming

- (Modern) Methods & techniques
- Neuroimaging
- Psychophysics