“A long past but a short history”

- Ebbinghaus said this because psychology’s questions go back to the ancients (Egypt, Greece, Rome).
- Thinking about psychological topics has been around a long time, but not the discipline of psychology.
  - Psychology emerged from the disciplines of philosophy and natural science.
  - Philosophy and science in Western civilization are rooted in the ancients.
  - We study Western ideas because we are Western.
Dates on the Ancient Timeline

BC means Before Christ
AD means Anno Domini or Year of the Lord, which is After the Birth of Christ
CE (more widely used now) means Common Era
BCE means Before the Common Era
BC = BCE and AD = CE
The Assyrian Empire
 Assyrian Dream Tablets

- Their clay tablets survived because they were fire-hardened.
- Written in a wedge-shaped writing system called cuneiform, developed by the Mesopotamians.
- They describe dreams of death and the shame of being found naked in public (universal).
Egypt, Greece & Rome

The world map as drawn by the Greek historian Hecataeus, ca 550 BC
The Celtic Empire (300 BC)

Celts today (green areas)
The Roman Empire (120 AD)
Contributions of the Ancients

- Ancient physicians and philosophers speculated about the nature and locus of the mind, sensation and perception, memory and learning.
- Their contributions persisted for thousands of years, forming the foundation for modern philosophy and science.
- Traces of their ideas persist in current thinking.
Early Greek Medicine

- Priests enacted rituals to promote healing, for a fee.
  - The patient was isolated in the temple.
  - Drugs were used to relieve pain and stop bleeding.
- Alcmaeon (500 BC) first dissected bodies of animals to study them objectively.
  - He founded a medical school to counteract the priests and promoted a rational, non-mystical, observation-based medicine.
  - He saw health and disease as a harmonious balance, taking a holistic (whole body), systems approach.
Hippocrates (460 BC)

- Hippocrates also rejected the superstition of the priests and founded a medical school.
- He taught that all disease results from natural causes and must be treated by natural methods.
  - Nature has a healing power.
  - The physician’s first duty is to refrain from interfering with nature’s healing – primum non nocere
- He often prescribed rest, exercise, diet, music, and association with friends to restore natural balance.
Picture of Hippocrates

Engraving by Peter Paul Rubens, 1638

We don’t know what he actually looked like, but there are many idealized sculptures and paintings of Hippocrates because of his importance to medicine.
Observations by Hippocrates

- The right side of the brain controls the left side of the body and vice versa.
- In “The Art of Healing” he described symptoms of melancholia (depression), mania, postpartum depression, phobias, paranoia and hysteria.
- In “The Nature of Man” he described a theory of four humors (corresponding to the 4 elements of air, earth, fire and water): blood, two biles, phlegm.
  - Bloodletting to balance humors was routinely practiced into the 1800’s, barber pole is sign of a bloodletter.
Humors and Personality

The terms phlegmatic, bilious, sanguine (from sanguis or blood) refer to imbalances of the humors and were used to describe personality traits. “Good humor” refers to a balance of the humors.

Too much:
- **Yellow Bile** = easily angered, choleric
- **Black Bile** = peevish, melancholic
- **Phlegm** = apathetic, dull
- **Blood** = cheerful, happy, optimistic
More Observations by Hippocrates

- He described epilepsy in “De morbu sacro” (Concerning the Sacred Disease).
  - Seizures were considered a result of divine meddling.
  - He rejected such views and predicted that a physiological cause would be discovered (it has been).

- His “dry mouth” theory of thirst says that as air passes over throat membranes it dries them out, creating a sensation of thirst that motivates drinking.
  - This is still considered partially correct (there is more to it than just this).
Father of Psychology?

- Hippocrates is considered the father of medicine but he also contributed to psychology by:
  - Describing the natural causes of psychological conditions
  - Recommending holistic treatments (like Alcmaeon)
  - Describing behavioral problems
  - Formulating long-lasting theories of temperament and motivation (based on imbalances of humors)
  - Criticizing laws prohibiting women from studying medicine
Galen (130 to 200 AD)

- Galen combined wisdom from Rome’s Imperial Library with personal observation and experiment.
- He wrote a 17-book treatise “De Usu Partium” (On the Usefulness of the Parts) describing the body.
  - He claimed that no part of the body is superfluous.
  - Based on this he asserted the improbability of creation without divine design.
  - Bodily warmth -- he failed to recognize the heart acts as a pump but said the heart’s biological flame distilled a spiritual substance (vital spirit) from the blood.
Avicena was a Persian philosopher who wrote the Book of Healing (1000 AD), still in use in universities in 1650.
Galен’s Contributions

- In “On the Passions and Errors of the Soul” he described a method for curing diseases of the soul.
  - Diseases arise from passions (anger, fear) which can be controlled via understanding and self-knowledge.
  - Self-love blinds us to our own faults without a therapist.
  - Galen first described the therapeutic relationship.

- Galen’s works dominated medicine until the Renaissance (1300-1600).
- Galen wrote about Hippocrates and other ancients.
Science depends on measurement.

Observation is not helpful unless it is done systematically.

Observations need to be repeatable, so description needs to be done in a way that anyone can reproduce.

Measurement is a standardized way of observing properties of the world by assigning numbers to them.

Measurement depends on mathematics.
The Greeks refined earlier accomplishments of Egyptians in geometry and surveying as the basis for mathematical theory.

Under the Greeks math became the language of science, more than a useful tool.

Math was used to predict solar eclipses (Thales of Miletus, 585 BC, fell in a ditch while looking at the sky).

Pythagoras tried to relate mathematical relationships in the world to psychological harmony (harmonics in music) and order in the physical world.
Pythagoras (575-495 BC)

He related physical properties to the psychological experience of harmony.

The principles of math are the principles of all things.

Ideal dimensions of the viola
A second foundation of science is the idea that a phenomenon can be understood in terms of its parts. It may be that emergent properties arise from the combination and functioning of fundamental parts. Life arises from biochemistry which is about the combination of physical elements.

An analytical (reductionist) approach suggests that by breaking down a phenomenon into its parts, isolating them for study, it can be better understood.
Democritus (460-370 BC) said tiny atomic particles in ceaseless motion are the basis of all matter.

- The world is a mass of atoms that runs without need of outside forces.
- The human mind is included in this physical world.

The mind’s contents (arrangement of atoms) is the result of experience.

- He incorrectly thought that objects beam particles at the mind to produce perceptions represented mentally in the form of icons (circles, sour taste = beamed atoms).
Zeno’s Paradoxes

- This view of mind gave rise to the problem of the relationship between mind and matter and the reliability of the sensory systems.
- Zeno of Elea (490-430 BC) invented paradoxes to demonstrate the inadequacy of the senses:
  - Achilles and the tortoise (he can never win because the turtle keeps moving, 10 meters + a little more).
  - Similarly, Rucker suggested that you can never leave the room you are in: \( \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \frac{1}{32} + \frac{1}{64} \ldots \)
  - Zeno was wrong -- the sum of an infinite series is 1.
Based on Zeno’s challenges, some Greek thinkers decided that “the proper study of mankind is man.”

- Man is the measure of all things.

- Socrates, Plato, Aristotle established epistemology, the branch of philosophy that investigates the origin, nature, methods, and limits of human knowledge.

- They studied learning, memory and conscious awareness.
Back to the Timeline

- [http://webspace.ship.edu/cgboer/600-200.html](http://webspace.ship.edu/cgboer/600-200.html)
Socrates (469-399 BC)

- Socrates questioned every assumption, doubted the obvious and ridiculed cant (rote belief) and pretension.
  - His method of questioning to arrive at truth is called the “Socratic Method.”
  - He believed that truth lies hidden in every mind and the role of the teacher is to uncover it via discovery (led by questions of the teacher).
  - Antiphon used questions to treat grief and melancholy, so is called the first psychotherapist (like Albert Ellis).
At 70 Socrates was charged with undermining the religion of the state and corrupting youth and was sentenced to death.
Plato (427-347 BC)

- Plato was a student of Socrates and recorded much of what we know about him in his “Dialogues.”
- Plato acknowledged the unreliability of the senses but said knowledge derives from the processes of reasoning about sensations.
  - Forms are eternal structures that organize the world and are revealed to us through rational thought.
  - Sensations decay but forms are permanent.
  - Analogy of a cave with flickering shadows cast by fire outside. Forms are the fire, sensations are the shadow.
Plato said that geometry increases the accuracy of knowledge of the world through measurement and deductive reasoning.

Geometry is knowledge of the Forms created by God.

Can the human psyche be measured like the world?

Plato suggested that people differ in skills and abilities endowed by the Gods (Plato’s Republic).

He classified people as gold, silver, brass or iron.

Some must rule, some must serve.

He proposed measuring body parts (reason in head).
Aristotle (385-322 BC)

- Aristotle was a student of Plato for 20 years.
- He complemented deductive reasoning with an inductive, observational approach.
- Aristotle saw the value of mathematics for making formal proofs to arrive at:
  - Logical deductions from self-evident assumptions and clear definitions.
  - He also recognized the value of careful observation.
- This led to both correct and incorrect conclusions.
Aristotle was the tutor of the young Alexander the Great who conquered much of Eastern Europe & the Middle East, extending to India.
Aristotle’s Psychology of Memory

- Aristotle developed basic principles of memory that have been restated many times in psychology and are still fundamental to contemporary theories.

- In “De memoria et reminiscientia” he said that memory results from 3 associative processes – see Hothersall, pg 27:
  - Similarity, contrast, contiguity

- Influences on the strength of an association are frequency of an experience and ease of formation.
Aristotle’s Theory of Causation

- He also developed an analysis of causation illustrated by examining a statue (see example using Michelangelo’s David) – also on pg 27.
  - Material cause – what the statue is made of.
  - Formal cause – its essence or form.
  - Efficient cause – how the statue came to have that form.
  - Final cause – the statue was created by Michelangelo.

- Attributions of purpose are unacceptable in a science of the physical world but apply to people.
Aristotle’s Other Views

- In “Art of Poetry” he described drama as having a purgative effect on the audience (draws out emotions).
  - This catharsis later became central to Freud’s theories.
- He said all life forms a “ladder of creation” from lowest to highest forms of complexity (scala natura).
  - Nutritive (plants), sensitive (animals), rational (humans).
  - This idea influenced Darwin’s theory of evolution.
- He thought the heart was the “seat of thought”.
Aristotle’s Misconceptions

- Aristotle’s logic led him to make other mistakes about animals in “Historia Animalium”:
  - He tried to classify them based on number of legs and presence of blood.
  - He concluded that bees don’t make honey but collect it.
  - He asserted that caged birds beaks grow long as a punishment for being inhospitable to a guest in a previous lifetime.
Post-Aristotelian Philosophy

- **Epicureans** included Epicurus (341-270 BC) and Lucretius (99-55 BC) & asserted that all knowledge originates in sensations stored in memory.
  - Entirely materialistic, so the goal of life is to enjoy pleasure while minimizing the pain of others -- Locke.

- **Stoics** included Zeno of Citium and Seneca who asserted that a rational principle (logos) guides the universe which each person has a duty to follow.
  - Passions are to be subdued in favor of reason -- Kant.