

- Biography
- Scientific Contributions in Historical Perspective
- Philosophical Thoughts

Born in Pergamum Sept. 22, 129 or 130 AD

- Wrote fondly of his father Nikon (architect, geometer)
- Wrote only once that his mother was a “Xanthippe”

Education and Career

- Philosophy in Pergamum
- Medicine (age 16 or 17): Pergamum, Smyrna (now Izmir, Turkey), Corinth, and Alexandria
- Returned to Pergamum at age 28, physician to the gladiators
- Rome at age 32, Marcus Aurelius

Many Contributions to Medicine

- Applied the Scientific Method to Medicine- Pharmacology, Anatomy, Physiology
- Brain, not heart, site of soul
- Identified 7 of the 12 Cranial Nerves
- Discovered blood in arteries
- Designed surgical equipment

Prolific Writer

- 120 Texts and 272 Titles survive
- A number of texts were lost in the fire of the Temple of Peace in 191
- Most of those preserved were translated into Arabic
- *A Good Doctor Must be a Philosopher*

Galen's Reach in Medicine is Significant

- By applying the scientific method to medicine he made advances that lasted from the 2nd until the 16th c.

Medicine Dogmatists

- Emphasized inferring the hidden cause of a disease from manifest symptoms
- Humoral theory of Hippocratic Authors
- Plato's *Timaeus* (earth, water, air and fire) The demiurge connects the soul to the universe

Empiricists

- Criticized Dogmatists for having overblown theories
- Emphasized closer observation of each individual patient and removal of disease symptoms without caring about the root cause
- Influenced by skepticism of Pyrrho (340 BC) and “ironically” by empirical orientation of Aristotle

Methodists

- Sort of between the Dogmatists and Empiricists
- Sought to understand and cure diseases based on theory that extremes in contraction or relaxation of the pores caused all illness

Pneumatists

- Associated with the Stoics
- Eclectic views
- One's Pneuma or vital air (which could be monitored with the pulse) could be imbalanced due to the qualities of hot, cold, moist, and dry, plus the 4 humors they associated with these qualities

Aristotle 4 c. BC

- Considered the Brain to be secondary organ with the function of cooling the heart
- The space where all the spirits came together *sensus communis*, was the Heart
- "There is nothing in the intellect that is not in the senses."

Identified 7 of the 12 Cranial Nerves

- Animal vivisection
- Observing the wounded

Found that Both Arteries and Veins had Blood

Galen Borrowed from Many

- Emphasized the general integration (*systasis*) of all parts of the body to form a functional whole
- Pneuma was carried by the nervous system and needed to be renewed through respiration (like Stoics)
- Like Aristotle he counted the body and soul as inseparable parts
- Unlike A. but like Hippocrates and Plato he linked the brain with the center of thought- Claimed perception and sensations were communicated through the spinal cord and nerves

Views

- Each patient needs specialized care as they have unique temperament and body arrangement
- Optimal health found between excess and deficiency
- Pores in balance to keep healthy
- Open and moist = Rare → resists internal
- Closed and dry = Dense → resists external
- Relative optimal health
- Preoccupied with logic- used as 'war horse' against adversaries whether ignorant Stoics, or negligent Empiricists

“Galenic Formulation”

- Method of preparing and compounding medicines to optimize their absorption
- Sought knowledge of the actual effects of medicine, rather than knowledge of the medicine itself
- Experimented on self
- Paid country doctors to experiment on themselves or sturdy peasants if he thought it was reckless for him

Skilled Surgeon

- Gladiators
- Traction
- Demonstration Theater
- Designed surgical equipment

Galen and Religion

- He mentions Jews and Christians only 6 times in his extensive texts
- To criticize other physicians
- To criticize people who believe faith can heal

Excerpt: *On Hippocrates' Anatomy*

Περὶ τῆς Ἰπποκράτους ἀνατομῆς

- "Therefore, physicians of the kind mentioned are comparable to Moses, who gave laws to the Jewish people, for he wrote his books without adducing proofs, he merely said: God has ordered, or, God has said."
- Galen 162-166 (Rome), Hunain ibn Ishaq tells us that he translated it into Syriac, quoted by Ibn Abi Usaibia (d. 1270 AD), in chapter 5 of his work *The History of Physicians*. He in turn was quoting an earlier collection by Ibn al-Matran (d. 1191 AD). Above translation by R. Walzer, *Galen on Jews and Christians*, Oxford University Press, 1949

The Hebrew Bible

The steps of a *good* man are ordered by the LORD: and he delighteth in his way. Psalm 37:23

From *De usu partium*

Writing about Eyelash Lengths

- Did our demiurge simply enjoin this hair to preserve its length always equal.... either from fear of its master's command, or from reverence for the god who gave this order, or is it because it itself believes it better to do this?The best way, of course, is ...to maintain like Moses the principle of the demiurge as the origin of every created thing, while adding the material principle to it.
- We say that **certain things are impossible by nature and that God does not even attempt such things at all but that he chooses the best out of the possibilities of becoming**. ...We say thus that God is the cause both of the choice of the best in the products of creation themselves and of the selection of the matter.

Hebrew and Christian Bibles

- Is anything too hard for the LORD? I will return to you at the appointed time next year, and Sarah will have a son." Genesis 18:14
- Jesus replied, "What is impossible with man is possible with God." Luke 18:27 (similar quotes in Matthew and Mark)

Galen *De differentiis pulsuum*

- One might more easily teach novelties to the followers of Moses and Christ than to the physicians and philosophers who cling fast to their schools.
-in order that one should not at the very beginning, as if one had come into the school of Moses and Christ, hear talk of undemonstrated laws, and that where it is least appropriate.
- Greek text by Galen survives, Translated by Walzer.

Galen, Εἰς τὸ πρῶτον κινοῦν ἀκίνητον

On the prime mover

- If I had in mind people who taught their pupils in the same way as the followers of Moses and Christ teach theirs — for they order them to accept everything on faith — I should not have given you a definition.

Hebrew and Christian Bibles

- And without faith it is impossible to please God, because anyone who comes to him must believe that he exists and that he rewards those who earnestly seek him. *Hebrews 11:6*
- We live by faith, not by sight. *2 Corinthians 5:7*

Galen's Writings

- He was not an atheist
- Foreshadowed the work of Darwin
- Critical of those not willing to have an open mind

Galen's Legacy

- Many of his works were encyclopedic and kept older knowledge alive
- Many of his works were translated into Arabic by Hunayn ibn Ishaq, which may have helped to stave off the Dark Ages in the regions less influenced by the Roman Tradition
- Modern students of Anatomy learn Greek and Latin, using instruments similar to his, and learn in theaters
- The rift between Science and Religion Remains