

ANCIENT ROME - Science

Frederic Will, Ph.D.

Overview The science of the ancient Romans is on the whole practical, and directed toward achieving concrete results. It is true that the Romans made contributions to astronomy--for instance in updating their sundial technology and in distributing the latest sundial models in all major cities of the Empire--and through the cosmological speculations of such as Lucretius, following the Greek atomists. On the whole, though, the Romans' salient contributions to science were in fields like agriculture, medicine, engineering, and architecture, earth bound disciplines targeting the everyday well being of citizens

Agriculture As their Empire grew, so did the arable land available to the Romans for farming. The extensive fields and grazing lands of northern Greece, France, parts of the Near East meant that the Romans had ample opportunity to deepen and profit from agricultural science. The Roman farmer, at his best, was as able as today's Midwestern American farmer, to prepare his fields, to rotate crop usage, to select his seeds for the next season, to plough and harvest--using wheeled ploughs and grain harvesters--to irrigate, to prune, to graft, even to cross species, as in the well known example of crossing apples with pumpkins.

Medicine Prior to the advent of foreign medical theories, with the arrival of Greek physicians in the early third century B.C.E., Roman medical practice had been largely restricted to traditional herbal (and spiritual) curative techniques. The advent of Greek physicians opened the door to vigorous new medical theories--say theories of contagion among diseases, or of relations between disease and diet--while trained physicians, working in urban or military field hospitals, developed ever more sophisticated surgical techniques, and an armory of surgical tools which equipped them for delicate internal interventions.

Engineering and Architecture Rome, in the imperial period, was a forest of brilliantly crafted monuments--adulations of victors in wars--triumphal arches that soared over the spectator, elegantly decorated facades worked in brick, vast unsupported amphitheaters, and masterfully structured show places like the Coliseum, where the circuses that amused the guy on the street took place, with their water organs, their devices for simulating thunderstorms, and their capacity to float opposing fleets, while slave-gobbling lions trotted along the proscenium.

Readings

Scarborough, John, *Drugs and Medicine in the Roman World*, Philadelphia, 1996.

Conrad, Lawrence, *The Western Medical Tradition, 800 B.C. to A.D. 1800*, Cambridge, 1998.

Discussion questions

The Romans made many strides toward the development of the hospital. Were they the first culture to innovate in this domain, or was there a hospital culture long before the Romans?

Where did the great engineers of ancient Rome get their training? Were they university trained, apprenticed into their profession, or imports from other countries?

We have mentioned the achievements of Roman agriculture. Did Roman agricultural practice evolve over the many centuries of the Roman state? Did growth in experience lead to change, or did individual agricultural geniuses move the science along?