LECTURE 5: Agriculture and Animal Husbandry

Literary handbooks:
Hesiod, *Works and Days* (7C BC). Poetic.
Xenophon, *Oeconomicus* (4C BC)
Mago, *On Agriculture* (230 BC? Lost; trans to Latin after 146 BC.
Cato, *On Agriculture* (2C BC). Closest to a practical manual.
Varro, *On Agriculture* (1C BC).
Vergil, *Georgics* (late 1C BC). Poetic.
Columella, *On Agriculture* (1C AC).
Palladius, *On Agriculture* (4C AC).

Why so much evidence?
Always a critical technology.
Majority of population engaged in agriculture.
Only respectable source of wealth, so literate elite involved in practice & theory.
Technology well developed and remained useful, so handbooks copied in Medieval.

Factors: climate, topography, available cultigens, soil types, taste in food stuffs, type of labour supply, draft animals and harvesting, and available tools, techniques.

Greece: mountainous, rocky land; poor, light soil in valleys; low annual rainfall; summer drought; overpopulation; small farms; slave labour less important.

Result: Subsistence farming; drought farming procedures (constant plowing and water conservation); fallow system; limited crops: grains, olive, vine, fig; hillside terracing; small-scale irrigation.

Italy: rich soil (alluvial, volcanic, terra rosa; many lowland plains near sea; higher annual rainfall; less marked summer drought; thinly populated; more or less uniform administration/political system allow movement of people, capital, ideas; imperialism bring in slaves in large nos. after 200 BC.

Result: more extensive variety of crops; larger land holdings with cash crops, i/o subsistence; big farms, *latifundia*; rotation of crops and less fallowing, increasing production; drought techniques not as important; drainage rather than irrigation or terracing; better tools, hybridization, and other investment.

Northern Europe: heavy clay soil; level terrain but heavy forest; high rainfall; cooler and more wet summer; shortage of labour.

Result: mix of land tenure arrangements; different crops: oats, rye, butter instead of olive, beer i/o wine; some mechanization.

Agricultural calendar, SB 3.16.

Wheats: einkorn, emmer, barley, millet, rye, oats.
Tree crops: olive, fig, apple, pear, plum, apricot, chestnuts, almonds, grapes.
Peaches and cherries from Near East. Lemons and oranges probably only by late Empire.

Lupines, lentils, peas, beans, chick peas. Alfalfa, vetch, fenugreek, oats.
Onions and garlic. Cucumber, beet, celery, turnips, radish, parsnip, artichoke, asparagus, lettuce.
Cultivated trees: oaks, cork, beeches, ilex, pine, fir, birch, ash, linden, maple, elm, cypress.

Livestock: oxen, cattle in Italy (Italia < *vitaliu* = *vitello*), sheep, goats, horses, mules, donkeys, pigs, dogs, cats, chicken, ducks, pigeons, doves, peacock, pheasants, thrushes, bees.

Character of the technology?
All social classes involved.
Labour intensive; somewhat inefficient animal harness; slaves used.
Largely empirical rather than scientific. Much practical experience, handbooks, but no research institutes.
Largely subsistence in Greek period; cash farming hampered by slow, expensive transportation system, preservation techniques. Restricted to oil, wine, grain.
No major step advances after 500 BC as result of new crops, techniques, tools.