

## Lecture 18

### Roman Agricultural History

#### Carthage

The history of Rome and Carthage are intimately connected. The beginnings of the Carthaginian civilization was a result of Phoenician expansion in the Western Mediterranean expanding to Sicily, Malta, Sardinia, and the north African coast. Its center was Carthage, a city in north Africa opposite Sicily, founded in 814 BCE by inhabitants of Phoenicia; their language was Punic, close to Hebrew.

#### Rome

The origins of Rome date to the 7<sup>th</sup> BCE century from Greek expansion. The earliest civilization is Etruscan which reached its peak in 530 to 520 BCE. From 640 to 580 BCE the major population centers of southern Etruria, and area in the center of modern day Italy, were transformed into cities dominated by Rome. The Roman republic begins in 509 BCE. The Punic wars 264–261 BCE, 218–201 BCE, 149–94 BCE between Carthage and Rome led to Roman domination and beginning of Roman Imperialism.

One of the earliest writings of agriculture known is by the Phoenician **Mago** in 350 BCE. Pliny refers to 28 volumes in Punic, now lost. The Romans, being practical, held agriculture in the highest esteem. Varro cites 28 books by Mago and 50 authorities on agriculture. Collumella calls Mago the Father of Agriculture. A translation was made into Greek in 88 BCE. Translated in Latin after 146 BCE. Abbreviated version in Greek by Dionysios and then again by Diophanes of Nicara.

In the last Punic war Carthage was destroyed along with its agriculture:

*Buildings and walls were razed to the ground; the plough passed over the site, and salt was sown in the furrow made...A solemn curse was pronounced that neither house, nor crops, should ever rise again.* B.L. Hallward. The Siege of Carthage. Cambridge Ancient History Vol. VIII.

(Was this the first use of chemical weed control?) Despite the enmity between Carthage and Rome, the Roman Senate ordered the translation of Mago upon the fall of Carthage.

The enigma of the thousand year history of Rome (roughly 500 BCE to 500 CE) is not that Rome disintegrated but that it held together as long as it did in spite of the conglomeration of diverse peoples and lands. Unlike the Greeks, the Romans were extremely interested in practical agriculture. It was a vital part of the economy; the largest single group of producers were farmers. On this firm foundation, Rome rose to glory, and according to some, declined along with its eroded soils. The history of Roman agriculture can be reconstructed from the writings of its historians which will be discussed in Lecture 19.

The Romans were great borrowers. Although they produced little that was really new, they did make great improvements. The horticultural technology used by the Romans can be traced to earlier sources, especially Greek and Egyptian. However, it became established, codified and workable. Their agricultural writings mention grafting and budding, the use of many kinds of fruits and vegetables, legume rotation, fertility appraisals, and cold storage of fruit. Mention can be found of a prototypes greenhouse (*specularia*) constructed of mica and used for vegetable forcing (see Reading 19-5, and Lecture 23). The important products were wheat, olive oil, and wine.

In many respects, the well-to-do Roman was a modern type, civilized and urbane, yet bound to the land through business. His problems were largely managerial ones: the care and handling of slaves, the management of income properties, the vagaries of profit and loss. The typical Roman-soldier, farmer, voluptuary-is strikingly similar to his 19<sup>th</sup> century counterpart; namely, the aristocrat of the antebellum South.

Early Rome has been described as a market place serving a hamlet of truck gardeners. With the conquest of new lands came the development of large slave plantations, which eventually led to free tenancy and estates, and finally to a manorial system. The great fortunes of Rome were invested in farmland. The good life was that of a gentleman farmer; the sign of wealth was the country estate.

Ornamental horticulture and landscape architecture developed to a high level. From the beginnings of Roman history, hereditary estates ranged in size from one to four acres were referred to as gardens (*hor-*

*tus*) rather than farms (funds). (To wish for more was considered a sign of a malcontent, if not downright dangerous.) The dwelling of an estate reflected the wealth of its owner. The prosperous Roman had a little place in the country, a *suburbanum*. It contained fruit orchards, in which grew apples, pears, figs, olives, pomegranates and flower gardens with lilies, roses, violets, pansies, poppies, iris, marigolds, snapdragons, and asters. The mansions of the wealthy became quite splendid. Formal gardens were enclosed by frescoed walls and were amply endowed with statuary and fountains, trellises, flower boxes, shaded walks, terraces, topiary (“bush sculpture”) and even heated swimming pools. The rule was luxury; the desired effect was extravagance.

Rome was largely a parasitic empire based on borrowed culture, slave labor and stolen goods. This was not destined to last forever, however, for in the middle of the first millennium BCE, the Roman Empire disintegrated, and Europe took a step backward to the village.

### **Horticulture and Classical Antiquity**

Our cultural heritage in art, literature, and ethics is largely traceable to Greek and Roman influences. According to the great historian of science, Charles Singer, this has resulted in an overemphasis on the importance of the technology of these cultures, which in some ways was lower than the more ancient cultures of Egypt and Mesopotamia, from which they were derived. The rise of both Greece and Rome was similar in some respects to the rise of the Huns and the Goths—a victory of barbarism over worn out but advanced cultures. The story of civilization and technology is not the steady upward climb of the past 600 years. The technology of horticulture is a good example of this. One is hard pressed for example of progress made by the Greeks or Romans that are comparable to those of ancient Egypt. Significant advance was to await the Renaissance.

A specific example of this delay concerns the state of knowledge on the role of sex in plants. The cultivation of the date palm and the fig in Mesopotamia clearly shows that the function of the nonbearing staminate plants of the date palm were understood and that the principle underlying **caprification** of the fig (the use of the wild capri fig which shelters a parasitic was—that carries pollen from the capri fig to the pistillate blossoms of the edible fig) was recognized. Theophrastus was aware of these ancient concepts, but this information became virtually lost until the Dutch botanist **Jacob Camerarius** (1670) experimentally proved the sexual nature of plants. Similarly, the ancient arts of graftage and irrigation, part of the basic technology of horticulture were not improved until very recently. Advances in technology that came about during the early medieval period are largely traceable to Eastern sources—China, Islam, and the Byzantine Empire.

### **References**

Singer, C. 1958 (reprint). *Science under the Roman empire*. In: *From Magic to Science*. Dover Press, New York.

### **Notes on Pesticides in Classical Greece & Rome**

See **Reading 18-1** based on the following sources: Democritus, Xenophon, Theophrastus [5th century BCE], Cato, (234–149 BCE), Varro (116–27 BCE), Virgil (70–19 BCE), Pliny (12 BCE–79 CE), Columella (1st century), Palladius (4th century compilation), Geoponika (A collection of agricultural writing is the 5th or 7th centuries; contains many lost works).

### **Methods for Disease Control based on religious practices**

“*Operations of husbandry, as war, is in the hands of the gods*” (Xenophon). Twelve priests of the fields with yearly sacrifices. Seia = goddess of seed sowing; Segesta = goddess of harvest; deity Robigus and goddess Flora were responsible for rust and mildew; Flora = goddess of plants, Ceres = goddess of cereals.

**Folk Magic and Remedies**

Many references in Pliny. Power of virgins and menstruating women was a common belief. Columella considered that a menstrual or nubile virgin with bare breast and unbound hair led thrice round a garden hedge caused caterpillars to fall to the ground.

**Fungal Disease Control**

Rust and mildews were very common on grains but it was not clear if the symptoms were the cause or the result of disease. The relation of dew and windless valleys to disease incidence was known; smokes; addition of plant residues, use of *amurca* (watery residue after olive oil expressed—may be related to salt which was added); use of ashes and sandarach (red arsenic of Greeks).

**Weed Control**

Perpetual problem; use of hoeing, grubbing, pulling, and burning; use of oil and salt to kill plants In the last Punic war Carthage was destroyed along with its agriculture:

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Was this the first use of chemical weed control?

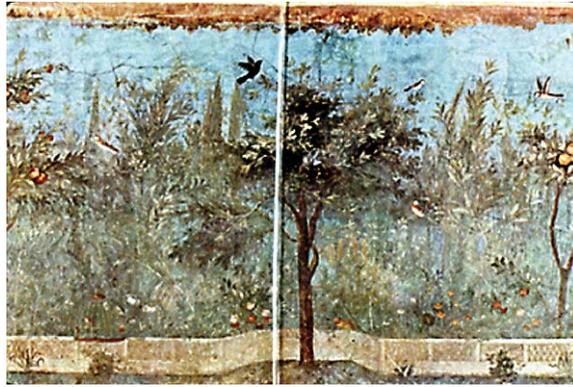
**Insect Control**

Natural products and preparations included seed treatment (juice of leek and wild cucumber), smearing pruning knives with blood and fat, insect repellents, tar on trees to capture insects.

**Vermin Control (mice, moles, rats, snakes)**

Use of poisonous baits (hellebore, hyocyamus, hemlock and wild cucumber); burning of sandarach.

## Roman Gardens and Garden Art



Frescoed wall from Emperor Livias garden. Source: Berrall p. 36–37.



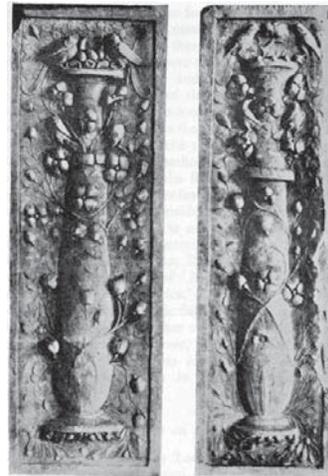
Excavation showing drainage for Roman gardens, Fishbourne. Source: Hyams p. 45.



Pedestal in pool, Pompeii. Source: Berrall p. 38.



Roman garden drainage, Fishbourne. Source: Hyams p. 47.



Wild rose on pedicels. Source: Singer (1958).