

LECTURE 06: Mining and Quarrying

Theophrastus, *On Stones* (late 4-early 3C BC)

Strabo, *Geography*; Pliny, *Natural History* bk 33, 36

Inscriptions

“Agricola” *De re metallica* (George Bauer, *On Mining*, Germany 1556)

Mines: Laurion (Greece), Sotiel Coronada, León, Posadas, Centenillo (Spain)

“Metal” from: *metalláo*, “search diligently”, *met’ állon*, “one next to another”? (Pliny)

Oxide, carbonate ore on surface (malachite, azurite for copper)

sulphide ores deeper (galena = lead sulphide, w silver)

gangue (waste material in ore)

placer deposits on surface; open cast pits

shaft (vertical), adit (from side), tunnel (horizontal)

force pump; drainage wheel with compartmented rim; Sotiel Coronada, Tharsis

water-screw at Posadas

Condemnation of criminals *ad metallas* (“To the mines”)

Hushing (sluicing with water)

Mt. Pentele quarries (Athens)

Luna (Cararra) quarries

Pantheon (Rome)

Baalbeck (Lebanon)

trench and wedge system

Water powered stone sawing machines: Gerasa, Pammukale.