Domestication in the Americas
- Mesoamerica
  - cucurbits
    - Guilá Naquitz, Oaxaca 8000 BC
  - Mesoamerican TRINITY
    - Coxcatlán Rock Shelter (Phase) 3500 BC
    - maize-beans-squash grown widely by 2000 BC & settled villages common
- Andes
  - cucurbits 8000 BC
  - camelids-quinoa-potatoes 5500-4000 BC
  - cotton 4000 BC

American Southwest
- TRINITY by 2-1500 BC
  - supplemental to hunting-gathering?
  - turkeys 800 BC

eastern North America
- local domesticates 2500 BC
  - goosefoot, sunflower, marsh elder, acorn squash
- earliest maize 1-400 AD
- maize agriculture 1000 AD
- Cahokia 900-1200 AD
- maize-beans-squash: cultural SUPERNOVA

Old & New Worlds

Desert Southwest
2000-1500 BC earliest maize
1400 maize-beans-squash

eastern N. America
2500 BC squash/oil plants
1-400 AD maize, 1000 AD maize-beans-squash

Early Mesoamerican Sites

SW Asia & East Asia 12-8 ka
Americas 10-8 ka

Synchronous, independent origins of agriculture

Mesoamerica
8000 BC (cucurbits); 4500-3500 (maize-beans-squash)
- early domestication events:
  - cucurbits
    - plants of the gourd family; i.e. melons, cucumbers, squash
  - domestication in humid tropical forests by 8000 BC
  - Guilá Naquitz, Oaxaca, 8030-7915 BC
    - seeds of bottle gourd and squash rind larger than wild-types, suggest domestication
  - original “interactions” with gourds as water containers?

- MA TRINITY = a coevolved group of domesticates
  - maize-beans-squash
  - *Zea mays*, or maize (corn) = domestic maize
  - *Zea mexican* ("teosinte") = wild grass progenitor of maize
    - originally thought that maize progenitor went extinct, but now demonstrated that it is teosinte
      - hybridizes (the “biological species” test)
      - few as 5 genetic mutations convert teosinte into maize... ease of domestication?

1. What does professor Brantingham mean by the Mesoamerican TRINITY?
   a) It is a synonym for the “Three Age System”.
   b) A complex aspect of Catholic faith.

   Carrie-Anne Moss?
- the TRINITY: domestication and human health
  - teosinte/maize lacking in two essential amino acids!
    - lysine & tryptophan
    - maize-only diet not possible
  - beans: high in lysine
  - squash: high in tryptophan
  - eat one (maize), must eat all!
  - domestication as a group → beneficial health consequences
  - domestication w/o knowledge of amino acids?

- the TRINITY: domestication and ecology
  - teosinte-beans-squash: natural ecological association
    - runner beans and squash grow naturally around the base of wild teosinte plants
    - teosinte/maize extracts nitrogen from soils; beans & squash return nitrogen to soils
    - association helps maintain soil fertility
  - interaction with one (e.g., water containers), interaction with all?
    - easy to domesticate as a group?

Earliest Maize Domestication
Guila Naquitz, 4500 BC & Coxcatlán, 3500 BC
San Andres, Tabasco, 6000 BC proto-domesticate?

Excavations at Coxcatlán, Tehuacan Valley, Mexico
Coxcatlán early maize cob

synchronous, independent origins of agriculture

Andes 8000-4000 BC
- American Southwest
  - originally thought maize spread from Mesoamerica alone ca. 2000 BC
    - a supplement to foraging (simple agri)
  - complexity of cultures in the late Archaic too much to be simple agri?
  - must imply TRINITY?

- Eastern N. America 2500 BC
  - synchronous, independent origins of agriculture
  - but not maize!

- American Southwest 2000 BC

- turkeys in American Southwest ca. 800 BC
  - who domesticated whom?
  - a model for dog domestication?
Desert Southwest
2000-1500 BC earliest maize
1400 maize-beans-squash

eastern N. America
2500 BC squash/oil plants
1-400 AD maize, 1000 AD maize-beans-squash

Mesoamerica
8000 BC (cucurbits); 4500-3500 (maize-beans-squash)

Increasing marsh elder seed size under prehistoric human cultivation
also sunflower, goosefoot, acorn squash

Moundbuilder Cultures
1000-600 BC

Hopewell Mounds 1-400 AD supplemental maize

Eastern North America -- Cahokia 900-1200 AD
Cultural SUPERNOVA with arrival of maize-beans-squash TRINITY