

## 2020-02-05 - Lecture 13

### 5.1 Ancient Rome - Imperial

#### 1) Roman Building Technology

- Romans used **trabeated system of the Greeks** (post & beam - column & architrave)
- Romans used **arch system of the Etruscans** (half-round arches or segmented arches)
- Romans developed **concrete construction** using pebbles, **pozzolana** (volcanic dust instead of sand), and lime. They cast it directly, or they made brick or stone walls and used the concrete as a **core** element to lock everything together
- **Centering** was the wooden sub-structure that created the *reverse* form of what was to be constructed. Once the arch was built, or the concrete poured, the centering was removed.
- **Roman brick** - called *opus testaceum*. Slender bricks, bonding courses, concrete core.
- **Reticulated work** (*diagonal*) - called *opus reticulatum*. Stones laid up on the diagonal w concrete core.
- **Barrel vault** - a linear vault resting on two parallel walls creating a barrel shape.
- **Groin vault** - when two barrel vaults intersect at right angles the result is a groin vault. Groin just means the intersection of two or more cylindrical shapes.

#### 2) Domus - the Roman House

- A **domus** on a large block may have been surrounded (faced on four sides) by small one-room shops at the ground floor with shopkeepers living above. These small stores or shops were called **tabernae**. (singular **taberna**) Kind of like today's "mixed housing and retail" concepts.
- Many **domus** in multistory housing is called **insula** - like an apartment block
- The major parts of the domus were:
  - ostium** - entry vestibule
  - atrium** - main entry court
  - impluvium** - a sunken basin in the center of the atrium where water could collect. Rainwater came through a hole in the roof called the **compluvium**. The captured water could be filtered through sand below grade into a cistern-like chamber. The captured water also could evaporate in hot weather - the process of evaporation caused cooling of the air around the atrium, **a sort of primitive air-conditioning**
  - tablinum** - home office
  - peristylum** - peristyle (remember **peristyle** means columns all around the **perimeter**) garden behind the home office
  - triclinium** - the dining room
  - cave canem** - literally beware of dog (in Latin). Common sign seen in ostium.

other parts:

cubiculum - bedroom

culina - kitchen

posticum - rear exit

#### 3) The Roman Forum prior to Imperial Rome (see images)

- **basilica** form or building type - a large public building like a courthouse for business to be transacted. Usually a long central corridor with a tribune and/or apse at far end and flanked by two lesser corridors called *side aisles*. In the Christian era the basilica is transformed into the Christian **church** building type.
- **tabularium** - a hall of public records, an archive. It sits at the NW end of the forum today built about 70 BCE
- **Temple of Vesta** - perhaps the most important temple on the forum. Built beginning 700 BCE, but rebuilt many times. It's a **tholos building type**. **Vesta** was the goddess of the **ancient Roman cult of hearth and home**, and always meant to be burning and attended by the **Vestal Virgins**. Many times a home would have their own shrine of Vesta.

#### 4) Julius Caesar's contributions

- **Forum of Julius** (sometimes the maps say Iulius). **Temple of Venus Genetrix**. The religious temple here was dedicated to **Venus Genetrix** (basically Venus, the Goddess of Love). Prefix *gen*, of course means a genetic connection or line, progenitor, gene, etc, and the suffix *trix* means feminine - thus by *genetrix*, Julius is claiming to be descended from Venus herself.

- **Curia Julia** - Senate House. He reoriented and rebuilt from the previous.
- **Sic Semper Tyrannus** (final words from Brutus to Caesar supposedly)
- Gaul Commander defeated by Caesar: Vercingetorix
- **SPQR: Senatus Populusque Romanus**

#### 5) **Augustus's contributions**

- **Forum of Augustus** - inside this forum was his **Temple to Mars**
- **Maison Carrée** - in Nîmes France. About 2 CE. Means *Cubic House*. The best preserved of all the Roman temples. Dedicated to Augustus and to two deceased grandchildren of his.

Thomas Jefferson used a model of Maison Carrée as the basis for his design the Virginia State Capitol

- **Tomb of Augustus** - just north of the city wall. A huge tumulus form. Out in front was a gigantic **horologium** or **solarium** arrangement on the ground, basically a giant sundial with an Egyptian obelisk as a gnomon. It could tell time even based on the season.
- **Ara Pacis** - right next to the *horologium* was an altar dedicated to the **Pax Romana**... the Roman Peace. It's a period of peace that begins with Augustus and goes from 27 BCE - 180 CE (ending with the last of the good emperors)
- **Vitruvius's Ten Books of Architecture** published 25 BCE and dedicated to Augustus

#### 6) **Trajan's contributions**

- **Forum of Trajan** - forum had an equestrian statue and a propylea gateway leading to more surprises, such as a giant historiated column, and **Trajan's Basilica Ulpia** at right angles to forum. (see images)
- **Trajan's Column** - tall column viewing tower, carved w a detailed history, dedicated to Trajan
- **Trajan's Market** - a semi-circular vaulted and arched system of **tabernae** (shops) for the working people (see image)

#### 7) **Hadrian's contributions**

- **Hadrian's Wall** separating Britain from Scotland. Hadrian spent much of his time traveling to all the outposts of the empire, and supervised this wall.
- **Temple of Venus and Rome** - it has been suggested that this is a riddle or paradox (it's definitely a palindrome) as the two cellas of this temple faced away from each other back-to-back, one housing Rome and one housing Venus, symbolizing **roma backwards is amor**, the latin root word for love (i.e. Venus). Hadrian's architect criticized the scaling of the exedrae the statues sat in and was killed for his criticism.
- **Hadrian's Villa** - in Tivoli near Rome. Hadrian's get-away palace. Hadrian had killed several Senators when he first took office and felt it was a good idea to stay away from Rome.

Included an entry vestibule where visitors could arrive and then bathe in the various **thermae**, one for patricians and one for servants.

The sequence then included a promenade with framed views that led to a long pool called the **canopus**, lined with Hadrian's favorite statues, and a giant exedra for outdoor dining called the **serapeum**. The 250 acre complex included a **nautical theater**, a library, stadia, and so on.

- **Pantheon of Rome** - the greatest work of this era, and best preserved temple in Rome. *Pan*, of course means *all*, so it covered all the pagan gods.

An Agrippa temple facing the opposite way had been on the site but was destroyed in the great fire of 64 CE. The main porch columns and the pediment were used for the Pantheon, that's why it says "Agrippa."

**Pantheon** is a perfect interior volume that inscribe a 142-foot sphere (see images).

Pantheon displays the full range of Roman building technology. Trabeated Corinthian architecture, pilasters around, concrete core to brickwork, clad in travertine originally, and on the inside seven giant supportive piers (the door opening makes the eight side) that have niches between them, each with giant columns holding the next level up.

**Roof is coffered concrete.** Coffered makes roof lighter. **Oculus** at top is 27-feet in diameter and essentially is a compression ring locking in the roof. Lighter concrete material used going upward (light pumice etc). Roof is buttressed by seven rings of stepped support.  
**Segmental on the outside // semicircular on the inside**

Thomas Jefferson so admired Pantheon, he made a **one-half size version** for his Rotunda at the University of Virginia in 1826.