A K A H N : Albert Kahn,
Archaeology of a Japanese Heritage

Archaeology – Dendrometry – Photogrammetry
Materials - Modeling

From LAMS :
LAVIER Catherine, CNRS archaeodendrometry
BORDESOULLES Muriel, M2 Université de Bordeaux Montaigne
BRAGEU Rémi, CNRS/3D and photogrammetry
DE VIGUERIE Laurence, CNRS chemistry
What was done:

**Before dismantling** of both pavillons:
- Virtual visit
- Exploratory study: wood and polychromy
- Reorientations of analyses / studies

To be continued

**During dismantling** of both pavillons:
- Observations
- Picture takings, 3D et photogrammetry
- Non-remployed material samplings
  - In labo for analysis (wood, plaster, filler…)

**Restoration** of elements:
- Access to all woods and others materials: storage
- Observations and archaeodendrometrical data samplings/measurements:
  - Dendrochronology: relative and absolute chronology, building year?
    - in Japan? in France? modifications/restauration(s): what year(s) ?...
  - Dendroprovenance: what countrie(s)? What kind(s) of forest? What regions(s)? Altitude?...

- Dendromorphology: 3D volumetry => tree restitution (age, size, shape…)
  - what cutting? Number of trees?...
- 3D imaging: manual scan (AKAHN) et ScanArm (PLOMO3D) wired and plan scans
- Traceology: gestures, tools, craftpeople
  - Wood supply and circulation, re-use …
- Restoration of *modus operandi*:
  - from the forest to the building site

**Reassembly** of dismantled pavillions:
- Observations and shots, movies, gestures and tools
- 3D imaging and photogrammetry
Before dismantling: initial state
Exploratory studies: polychromy

**IN SITU**

Fluorescence X and colorimetry
Hand tools without contact
Tests and feasibility studies
+ M2 Muriel Bordessoulles

Detected colours:
White, Grey-blue
Grey, Orange
+ coating and varnished wood

= Detection of several chemical elements but not possible to define them by layer
Micro-samplings of colored materials for analyses in laboratory
Tests and feasibility + Master2

200 μ

200 μ
Autochromium dated beg. XXth c.
Archives From A. Kahn museum

Spectrum

Lead : Old paintings before 1990s

Calcium
Zinc
Iron
Copper

Old paintings before 1990s

Spectrum

Lead:
The copper is present in both tokonoma but 2 distinct preparations = different period ? Different “restaurations” ?
Archeodendrometry :=> wood anatomy

Few micro-samples

Ex of wood used : SUGI wood : Japanese cedar (Cryptomeria japonica)
Archeodendrometry => dendrochronology = Contemporary wood ?
Dendrometrical data made in situ no sampling, no contact based on radial growth of conifers

Very visible tree-rings

Growth direction
Bark ← pith
**DENDROCHRONOLOGY**

WOOD WORK
Tangential cutting
⇒ Sawed
    but manually, mechanically or electrically?
⇒ No cleavage/splitting

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moelle

Moire work
Tangential cutting
⇒ Sawed
    but manually, mechanically or electrically?
⇒ No cleavage/splitting

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Growth: fast to low
Age: 50 to 200 years
Wood species?
- Hinoki
- Sugi
- Sawara
- Elm
...?
Geographical provenance?
- Japan?
- Europe?
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NEXT STEPS

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