## THE UNIBO WAY OF TEACHING

BA courses in Archaeology at the University of Bologna



WALADU Cascade Training,

**Bertinoro 11th-15th December 2018** 



### **PLAN OF THE PRESENTATION**

#### **PART 1 - GENERAL INTRODUCTION AND CONCEPTS**

- The Italian university system
- General framework of UNIBO degrees

#### **PART 2 - BA COURSES IN ARCHAEOLOGY AT UNIBO**

- Type of courses
- Laboratories and stages
- <u>Mobility</u>

#### **PART 3 - QUALITY ASSURANCE**

- Internal and national evaluation
- Stakeholders

**PART 4 - JOB MARKET** 

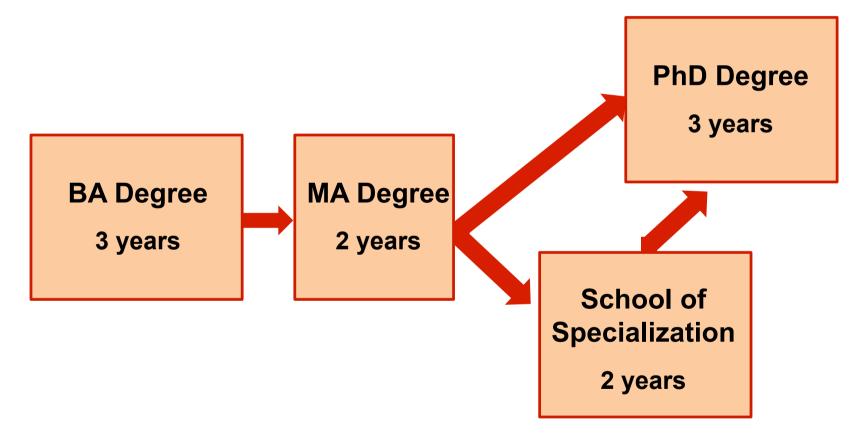
- Alma Laurea

## Part 1 – GENERAL INTRO AND CONCEPTS





## THE ITALIAN UNIVERSITY SYSTEM





Part 1 – Intro and concepts

## **PLANNING COURSES AT UNIBO**

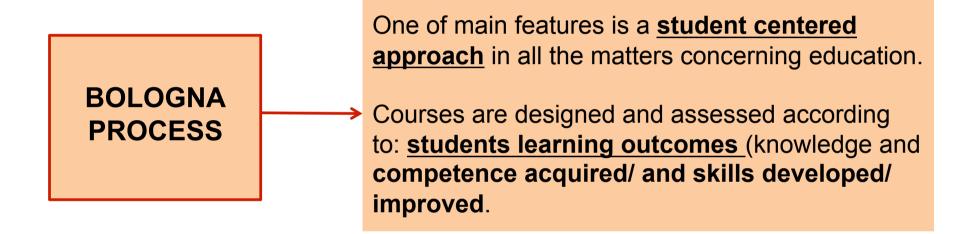


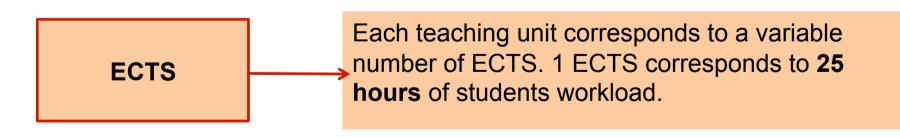
- 1. PLANNING: Defining aims of the teaching course
- 2. MANAGEMENT: Academic and administrative staff overlook the activities to be carried out
- **3. EVALUATION**: Each teaching course staff periodically evaluate the results achieved
- **4. IMPROVEMENT**: Re-shape teaching strategies in order to meet job market needs



Part 1 – Intro and concepts

## **LEARNING OUTCOMES**







Part 1 – Intro and concepts

## Part 2 – BA COURSES IN ARCHAEOLOGY AT UNIBO





### **ARCHAEOLOGY DEGREE SYSTEM AT UNIBO Courses and places**



#### **BOLOGNA**

- 1 MA in Archaeology
- **1** Specialization School

1 BA in Cultural Heritage 1 MA in Conservation



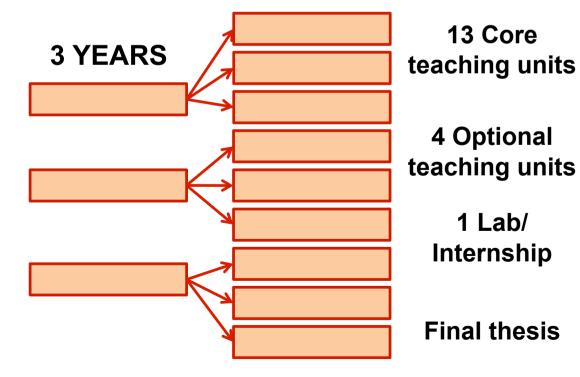
### **ARCHAEOLOGY DEGREE SYSTEM AT UNIBO** Type of activities





### ARCHAEOLOGY DEGREE SYSTEM AT UNIBO BA course in Arts (Bologna)





#### **Professional skills**

- Selected ancient languages
- Theory and analysis of visual arts
- Archaeological methods and theories
- Ancient history of Italy and Mediterran.
- Critical use of sources in different disciplines

#### **Job opportunities**

- Librarian and archivist
- Field archaeologist
- Museum employee
- Public/private foundation employee
- Publishers
- Cultural turism

**BA course in Arts (Bologna)** 





95 senior and junior researchers are involved in the teaching activities

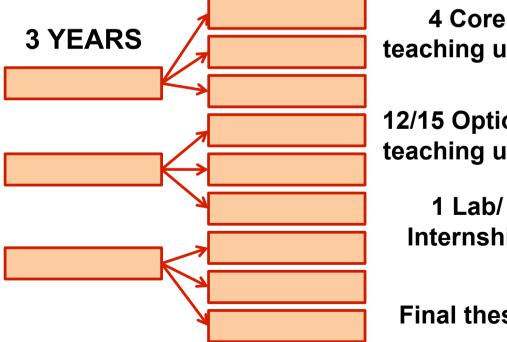
**684 students** enrolled for 2015-2016 academic years



**BA course in Cultural Heritage (Ravenna)** 







teaching units

12/15 Optional teaching units

> 1 Lab/ Internship

**Final thesis** 

#### **Professional skills**

- Conservation, documentation and management of Cutlural Heritage
- Cultural Heritage Laws
- Archaeological methods and theories
- Anthropological methods and theories
- Critical use of sources

#### **Job opportunities**

- Librarian and archivist
- Field archaeologist
- Public/private foundation employee
- Publishers
- Cultural turism

#### **BA course in Cultural Heritage (Ravenna)**



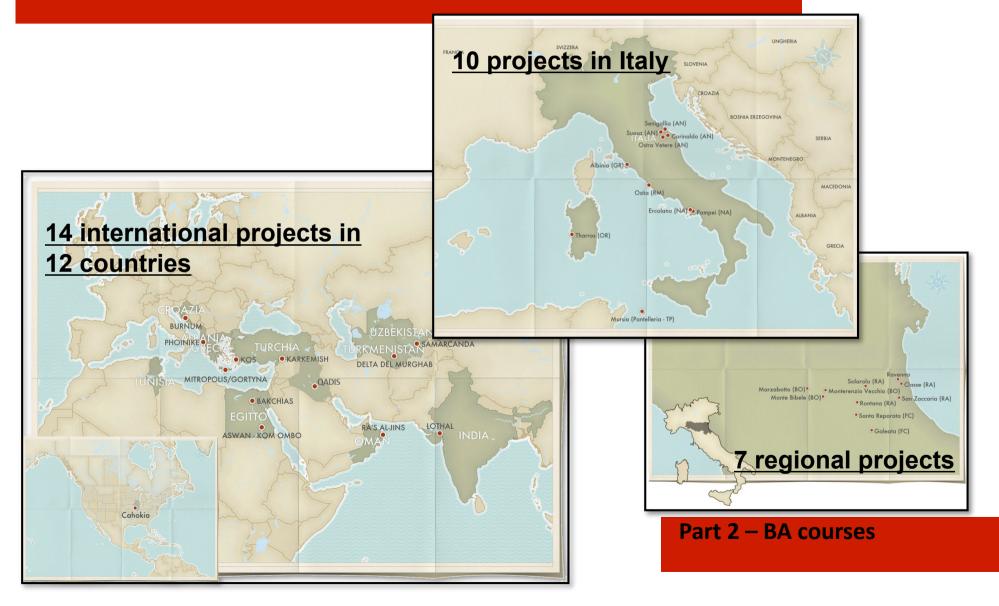


52 senior and junior researchers are involved in the teaching activities

**178 students** enrolled for 2015-2016 academic years



### ARCHAEOLOGY DEGREE SYSTEM AT UNIBO Fieldworks



### ARCHAEOLOGY DEGREE SYSTEM AT UNIBO Laboratories

#### 4 Labs for BA students

- Remote sensing
- Topography
- Pottery and small finds
- Bioarchaeology



### 15 Labs for MA and Spec. School students

- Remote sensing (2 labs)
- Topography (2 labs)
- Pottery and small finds (7 labs)
- Bioarchaeology (3 labs)
- Experimental archaeology (1 lab)

### ARCHAEOLOGY DEGREE SYSTEM AT UNIBO Internships



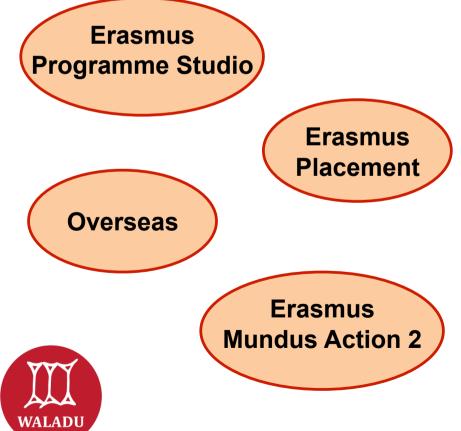
Internships represent one of the most efficient ways to allow students to interact with the job market.

The Department of History and Culture at UNIBO offers to its students the opportunity to carry out internships in both **public institution** and **private institutions**.



**International mobility** 







## Part 3 - QUALITY ASSURANCE



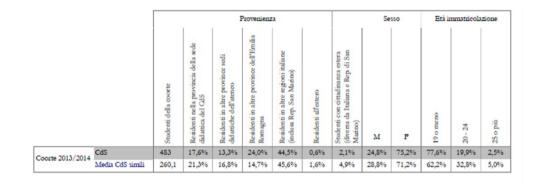


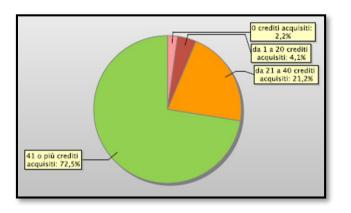
## **EVALUATION SYSTEM**

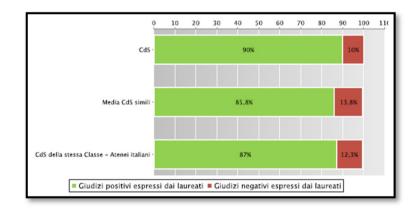
#### **Internal and National evaluations**

#### Internal evaluation (every year)

- Students provenience
- Students satisfaction
- Number of ECTS obtained
- Studying abandonment
- Average teaching units marks
- International mobility





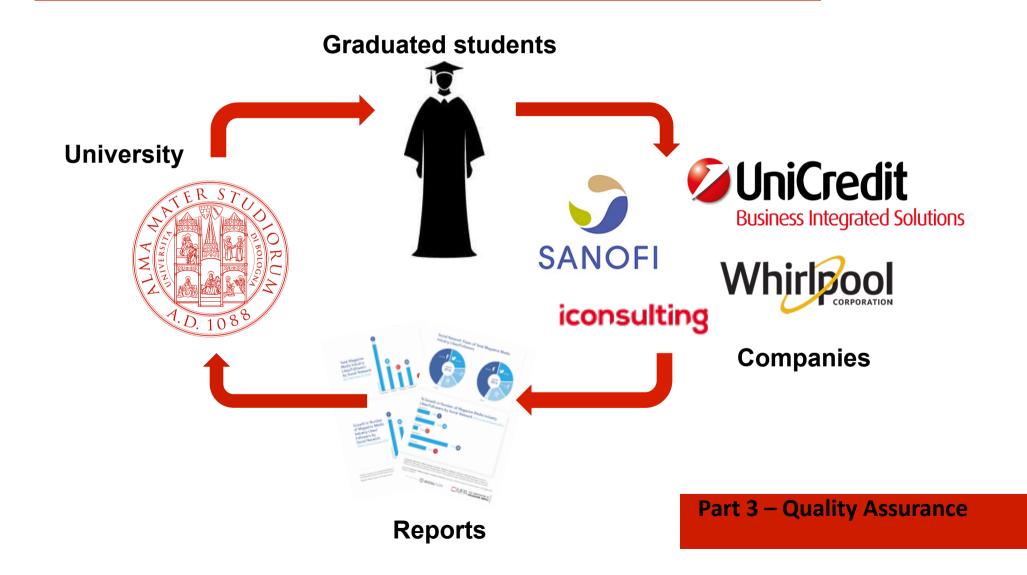


Beside internal evaluation, every **3 years**, **national evaluations** are carried out **to test the efficiency** of each course.

#### Part 3 – Quality Assurance

## **EVALUATION SYSTEM**

#### The role of stakeholders



## **QUALITY INDICATORS**

**National and international reputation** 



1st UNIBO discipline

2nd Department for the study of Archaeology in Italy

36th Department for the study of Archaeology in the World

1st UNIBO Arts and Humanities in Italy for job opportunities

1st UNIBO Arts and Humanities in Italy for International relations



Part 3 – Quality and Job

## **Part 4 – JOB OPPORTUNITIES**





## **IMPROVING JOB OPPORTUNITIES**

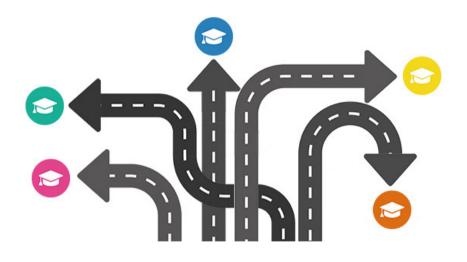


Alma Laurea its an online platform which acts as a bridge between university and the job market. It was created in 1994 at the University of Bologna with 3 main purposes:

1.To allow UNIs to understand academic trend of their students

2. To allow UNIs to understand students placement after 1 - 3 - 5 years.

3. To provide Italian and foreign business companies with a detailed database of newly graduated students.



# The Past meets the Future Technology in archaeological research





WALADU Cascade Training

University Residential Centre of Bertinoro 10th-15th December 2018



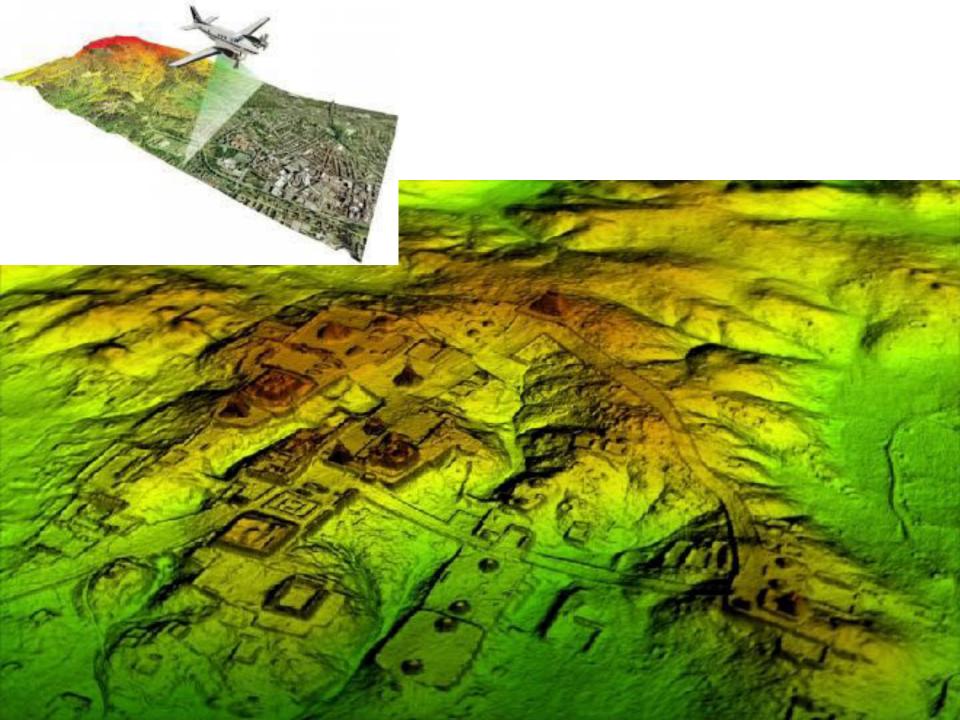


- To present "new" tools for the management of archaeological data
- To confront with all of you about the data management, comparing our expertise
- To create a "new" model of data management

# **High Technology in Archaeology**

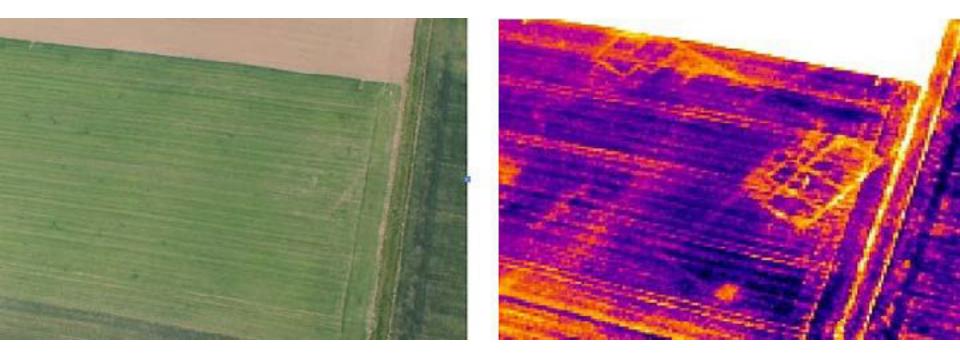
## LIDAR (Light Detection And Ranging)

Surveying method that measures distance to a target by illuminating the target with pulsed laser light and measuring the reflected pulses with a sensor. Differences in laser return times and wavelengths can then be used to make digital 3-D representations of the target.



# **High Technology in Archaeology**

## **AERIAL THERMOGRAPHY**

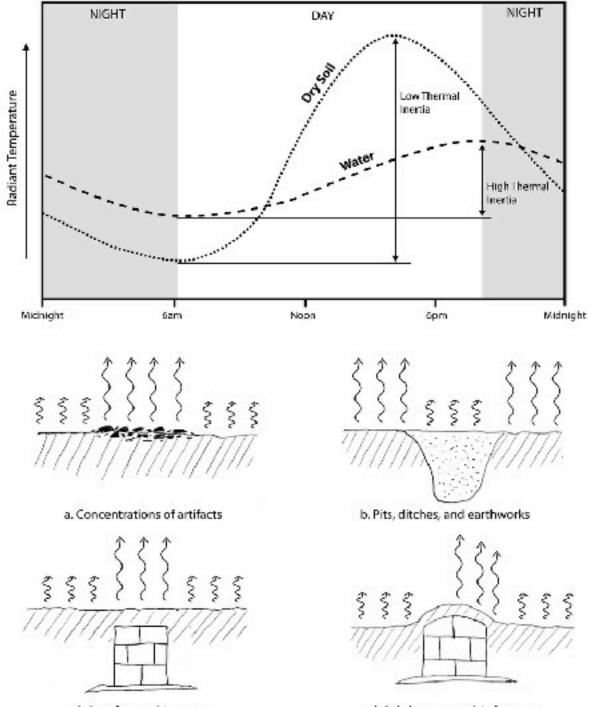


Surveying method through thermal infrared radiation.

# **High Technology in Archaeology**

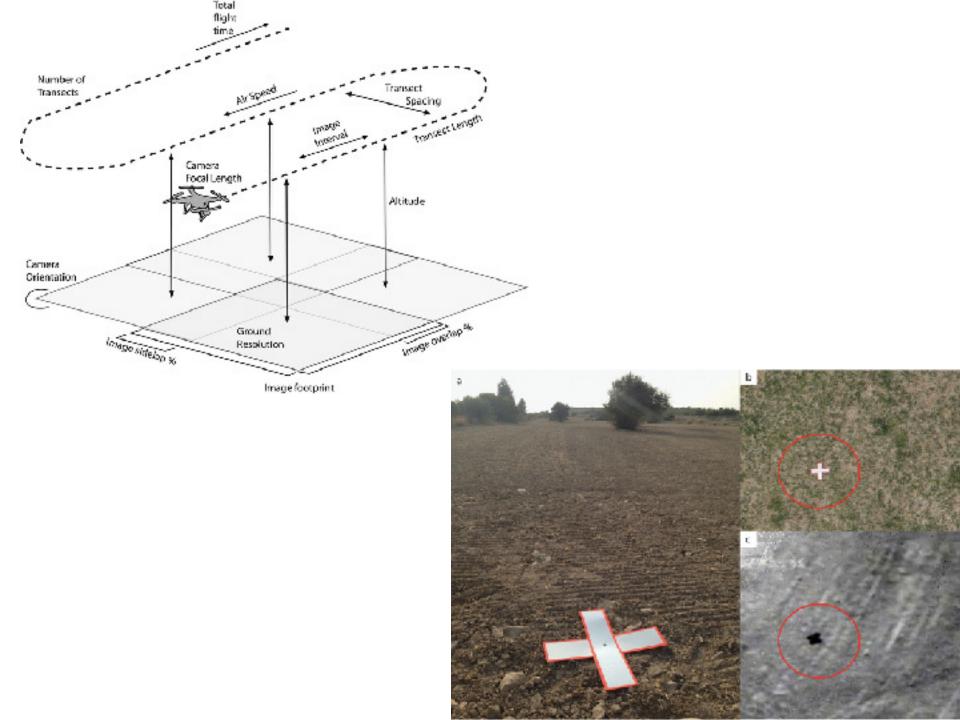
## **AERIAL THERMOGRAPHY**

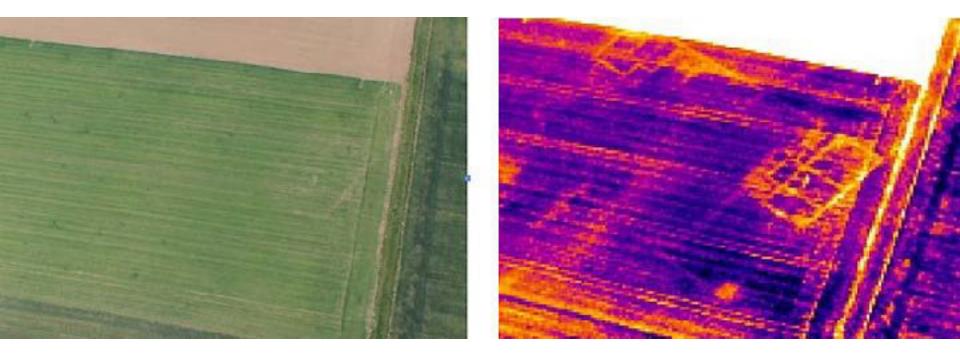
Thermal infrared radiation is absorbed and reemitted at varying rates by all objects on and within the ground depending upon their density, composition, and moisture content. If an area containing archaeological features is recorded at the moment when their thermal signatures most strongly contrast with that of the surrounding matrix, they can be visually identified in thermal images.



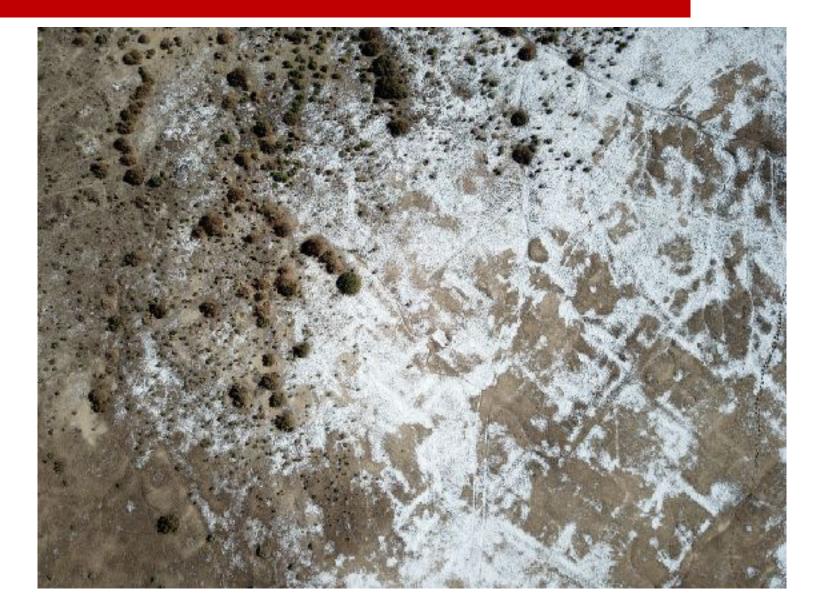
c. Subsurface architecture

d. Subtle topographic features





# **Capillary action of the water**



# **Capillary action of the water**



# **Robotics thecnology in archaeology**

## **ROVINA Project (University of Freibourg)**





- To present "new" tools for the management of archaeological data
- To confront with all of you about the data management, comparing our expertise
- To create a "new" model of data management



#### DATA FROM ARCHAEOLOGICAL EXCAVATION

- Stratigrafic data
- Topographic data
- Material culture (Pottery and Small Finds)

# How do you manage archaeological data?

#### The archaeological excavation

#### **DESTRUCTIVE PROCESS**



One time activity

## Everything needs to be recorded properly

## The archaeological excavation

## Everything needs to be recorded properly

One time activity

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#### Database

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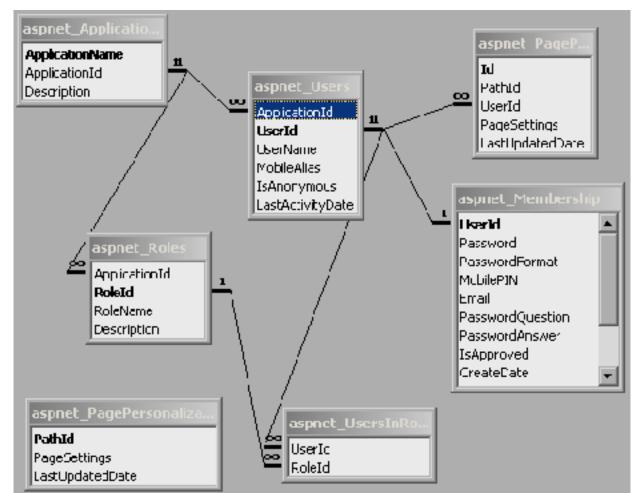
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## Database

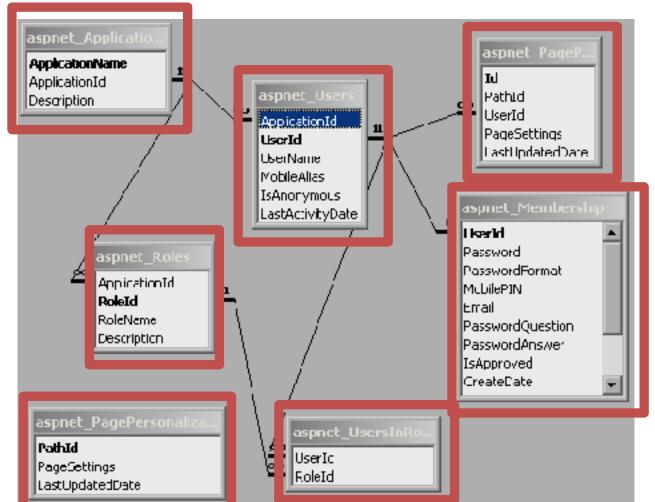
- All types of data can be recorded in a database, such as:
- Stratigraphic data
- Topographic data
- Material culture data (pottery & small finds)
- Philologic data



#### rows and columns in a series of TABLES use SQL for writing and querying data



#### **TABLES**



#### **COLUMNS = FIELDS**

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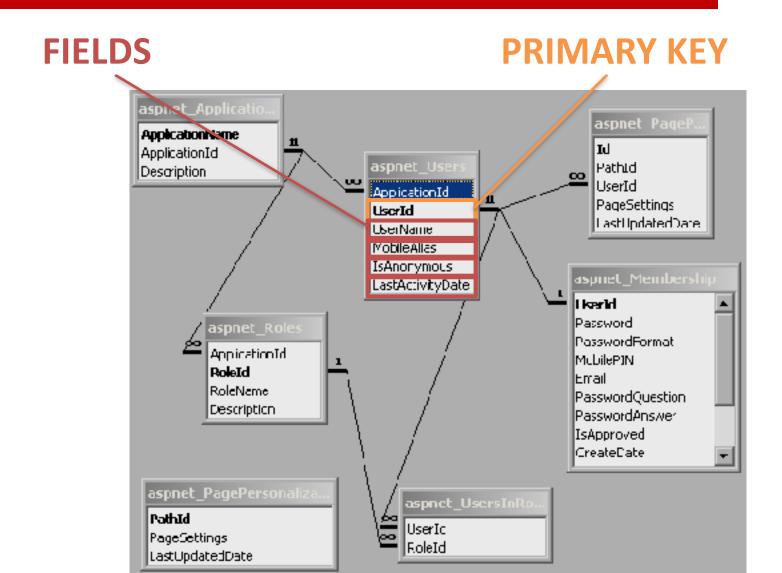
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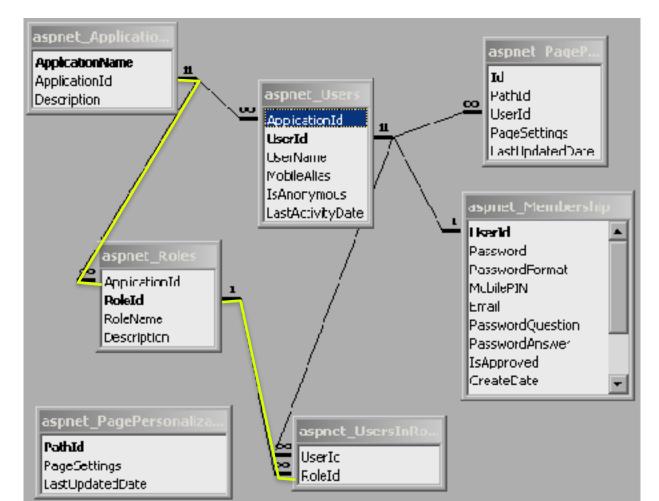
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#### **RELATIONSHIP BETWEEN TABLES**



- To individuate which kind of data will be recorded in the database
- To create and organize all the tables, defining fields and primary key
- To define the relationship between the tables



## ...IT'S UP TO YOU!

#### **GRAPHIC AND QUERIES**

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## DATA FROM ARCHAEOLOGICAL EXCAVATION





WALADU Cascade Training University Residential Centre of Bertinoro

10th-15th December 2018

🔅 Erasmus+

## DATA FROM ARCHAEOLOGICAL EXCAVATION

- Stratigraphic data
- Topographic data
- Material culture (Pottery and Small Finds)

#### archaeological excavation in the '800



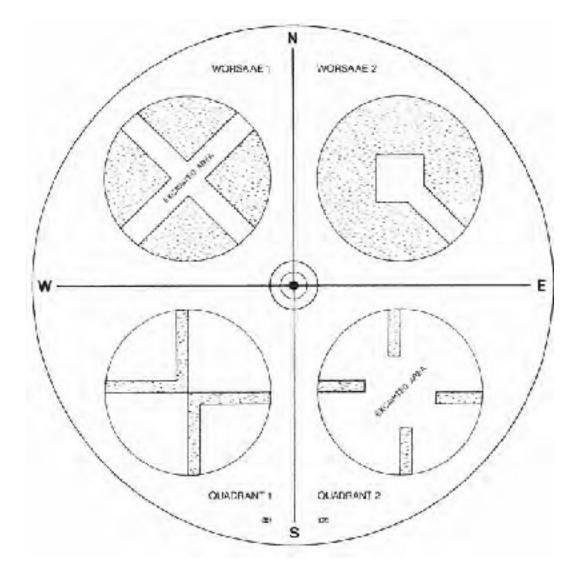


Layard

archaeological excavation in the '800

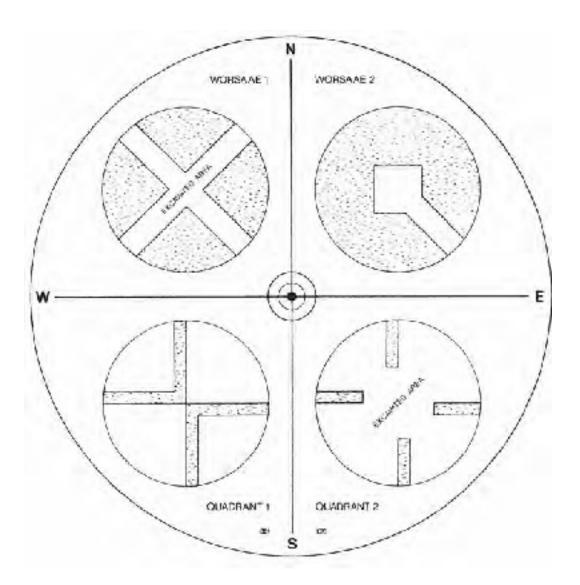
During the nineteenth century, burial mounds were excavated by trenches which exposed the primary burial in the centre, leaving the outer areas unexcavated.

In this century, the quadrant method reversed the procedure; the trench area became baulks and the outer areas were excavated first



archaeological excavation in the '800

NO CONCEPT OF STRATIGRAPHY



#### archaeological excavation in the 1930



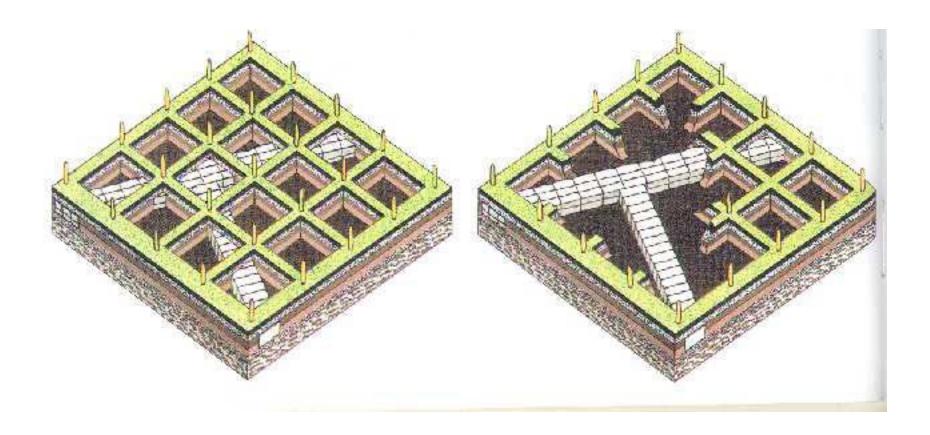
#### **Sir Mortimer Weeler**

#### archaeological excavation in the 1930



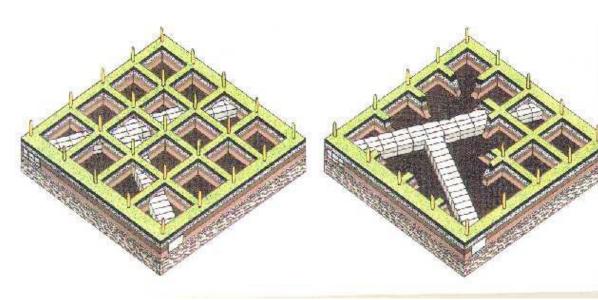
#### **Sir Mortimer Weeler**

#### **GRID EXCAVATION**

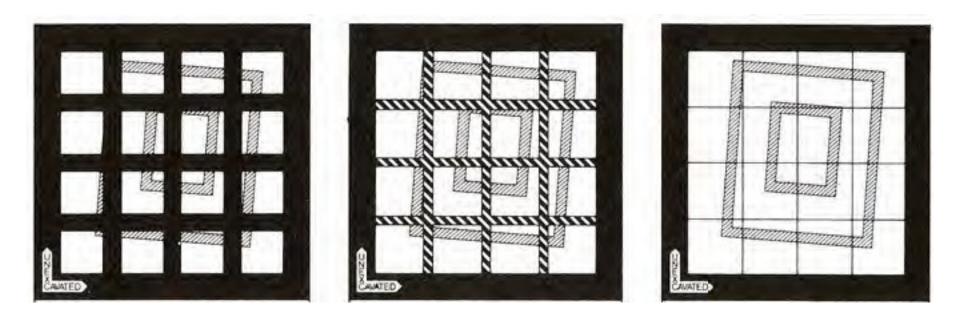


Wheeler's grid method was a strategy by which a site was excavated in a series of small square holes. Between the squares were a series of baulks, the faces of which retained the stratigraphic profiles of different areas of the site. As originally conceived, the grid system was a type of area-excavation, as the baulks were eventually removed as the excavation reached the surface of a major period on a site. In addition, Wheeler saw the method as a way of controlling both excavation and recording, as each supervisor's area was clearly demarcated.

#### **GRID EXCAVATION**



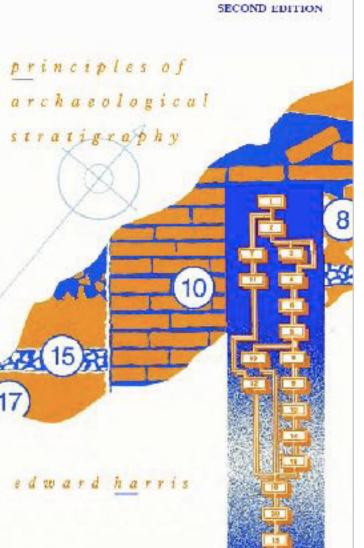
#### **EVOLUTION OF THE GRID EXCAVATION**



progression from grid excavation with large unexcavated baulks of the 1930s through to the open-area excavation method of the 1960s, which used cumulative sections instead of the standing sections of permanent baulks

#### **OPEN AREA EXCAVATION**

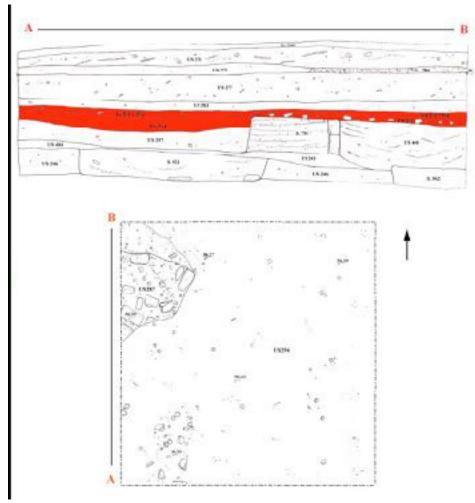




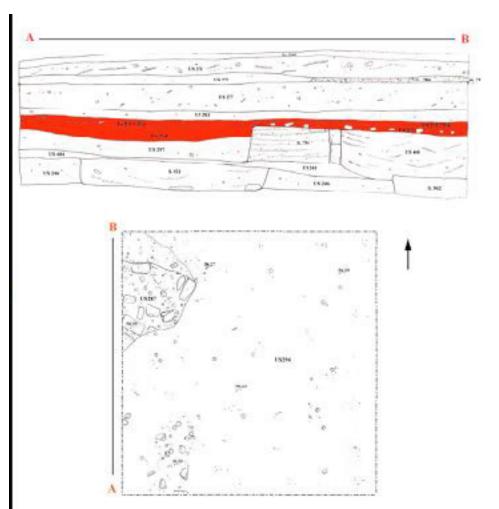
#### 1979 Edward Harris theorization of archaeological stratigraphy

## DATA FROM ARCHAEOLOGICAL EXCAVATION

#### Stratigraphic data

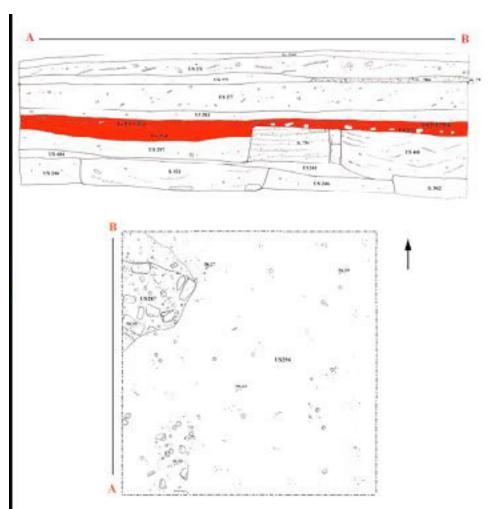


#### **Units of stratigraphy**



single events or actions that leave discrete, detectable traces in the archaeological sequence or stratigraphy

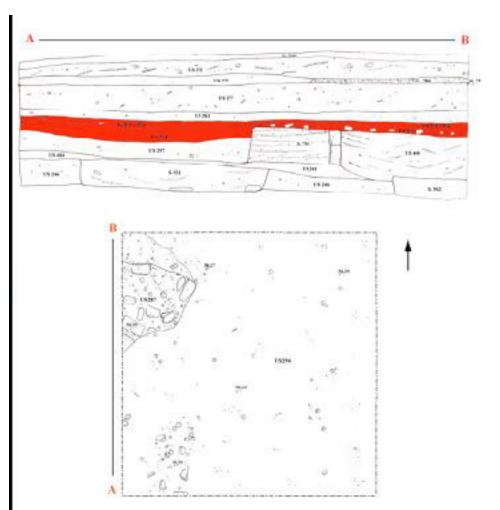
#### **Units of stratigraphy**



single events or actions that leave discrete, detectable traces in the archaeological sequence or stratigraphy

They can be deposits (such as the back-fill of a ditch), structures (such as walls), or "zero thickness surfaciques", better known as "cuts". Cuts represent actions that remove other solid contexts such as fills, deposits, and walls

#### Units of stratigraphy



The Principle of Superposition: in a series of layers and features, the upper layers were deposited later and so are younger, and lower layers are older. In other words, "the further down you dig, the further back in time you go."

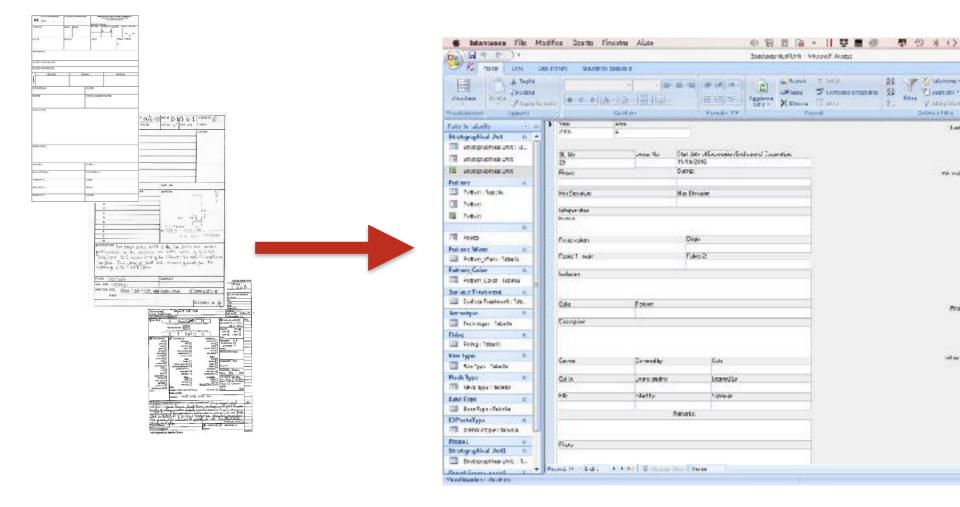
The Principle of Original Horizontality: layers were originally deposited in a horizontal position, whether or not they still appear horizontally in an excavation.

The Principle of Lateral Continuity: a layer appearing in a vertical "sliced" view means that this layer was cut into at some point in time, and part of it removed; the layer continues uninterrupted in surrounding areas.

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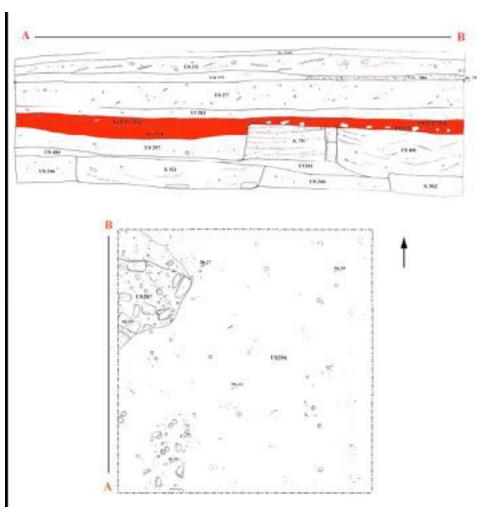
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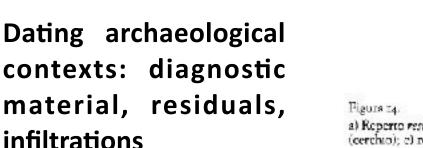
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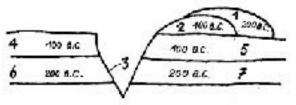
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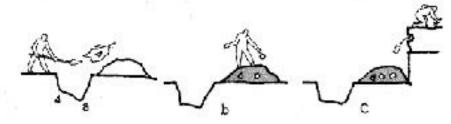
#### Figura 13.

1 è posteriore a 2, nonostante l'indicazione contraria dei reperti, in questo caso da considerarsi residui provenienti da 4 = 5 e da 6 = 7.



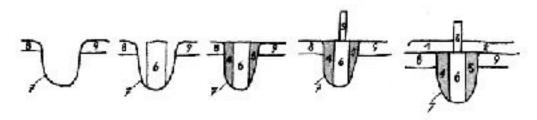


a) Reperto *residuo* di altro strato più antico (triangolo); b) reperto *coevo* alla formazione dello strato (cerchio); c) reperto *intraso* proveniente da altro strato più tardo (rettangolo).



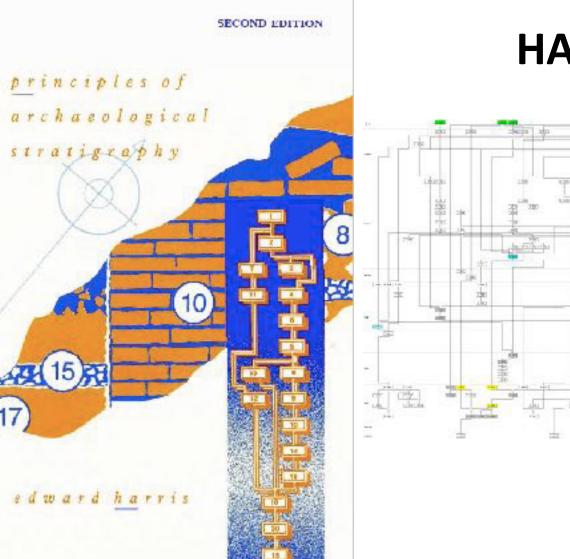
#### Figura 15.

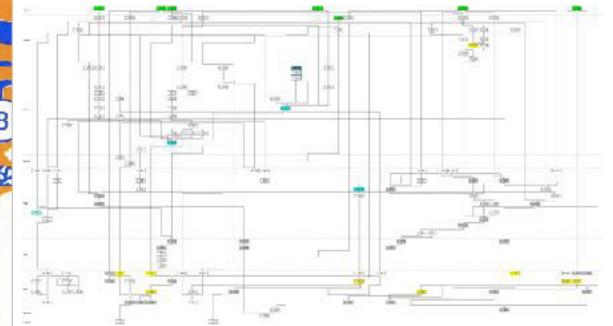
Sequenza stratigrafica relativa a un muro. Se non si distingue numerandola la fossa di fondazione 7 dagli strati 4 e 5 che la riempiono, l'insieme chene risulta può essere considerato anteriore alla fondazione 6 (il che è vero per 7 ma non per 4 e 5) o posteriore (il che è vero per 4 e 5 ma non per 7).



#### **Quintifying pottery**

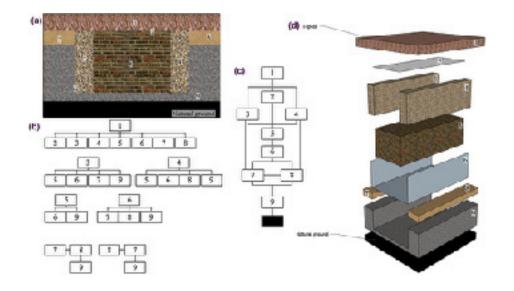
# Is the recording on the database sufficient for stratigraphic unit?



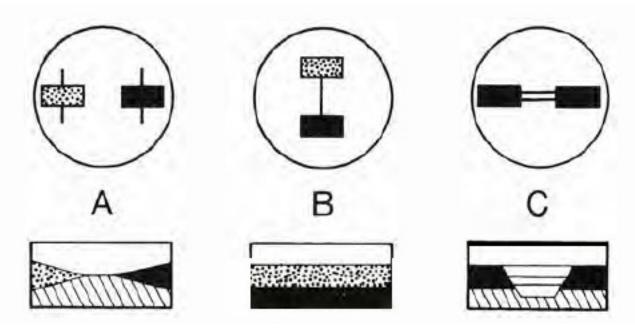


#### HARRIS MATRIX

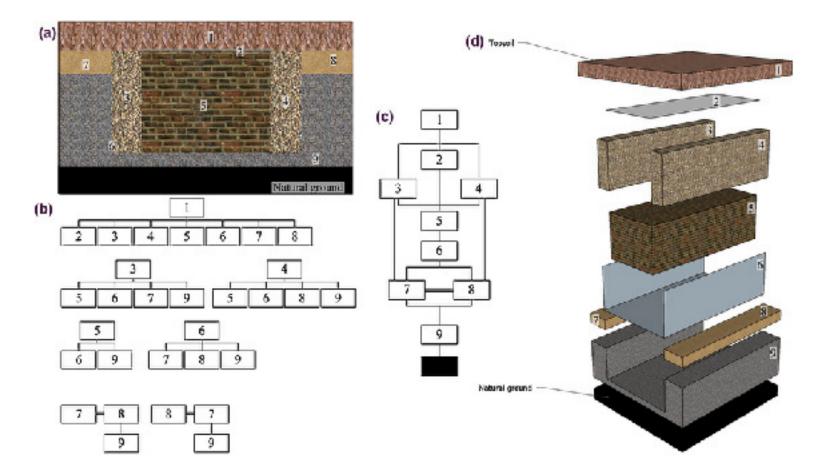
A **Harris Matrix** is a tool that archaeologists use to keep track of stratigraphy and stratigraphic units. By using the laws of stratigraphy, archaeologists create these logic diagrams to record the top-down sequence of stratigraphic deposits and help make sense of the information they contain.

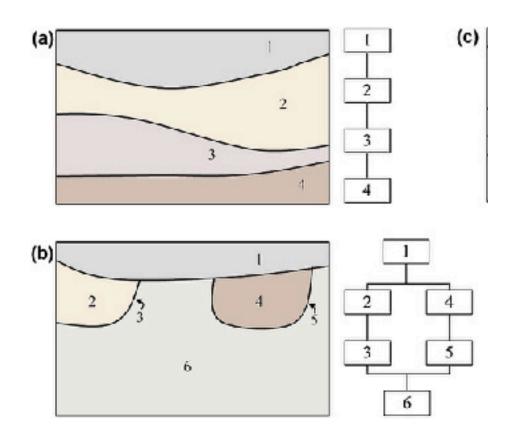


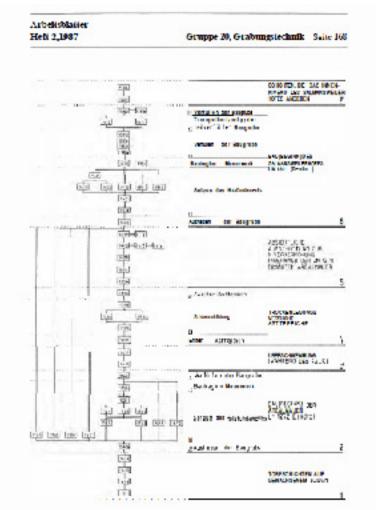
#### HARRIS MATRIX



The Harris Matrix system recognizes only three relationships between units of archaeological stratification. (A) The units have no direct stratigraphic connection. (B) they are in superposition; and (C) the units are correlated as parts of a once-whole deposit or feature interface.

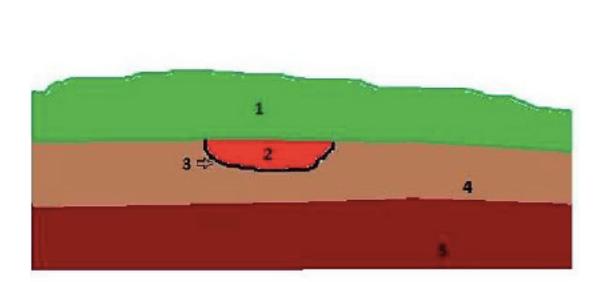


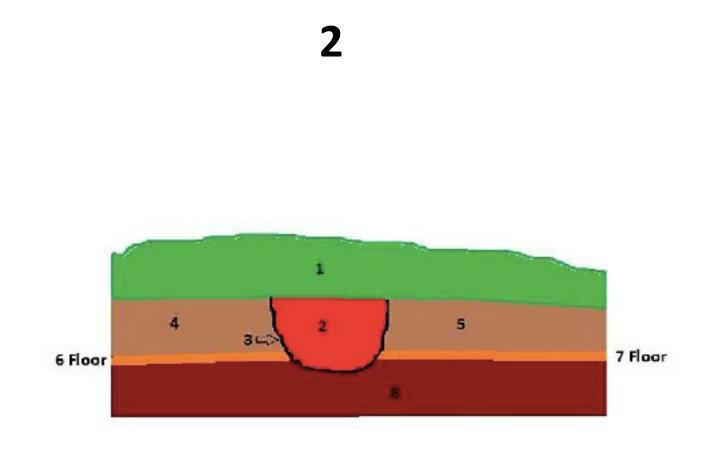


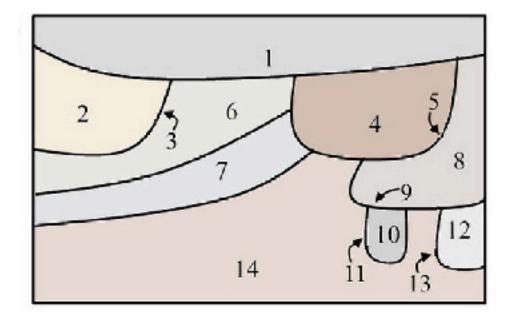


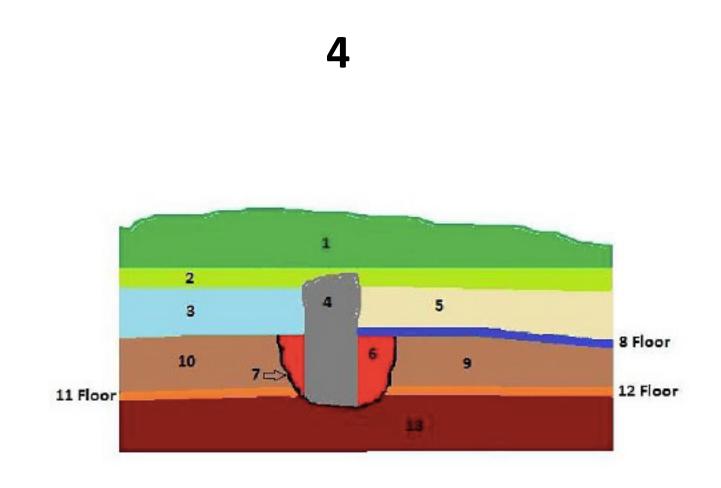


#### ...IT'S UP TO YOU!

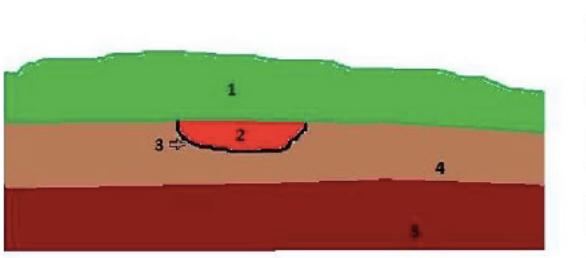




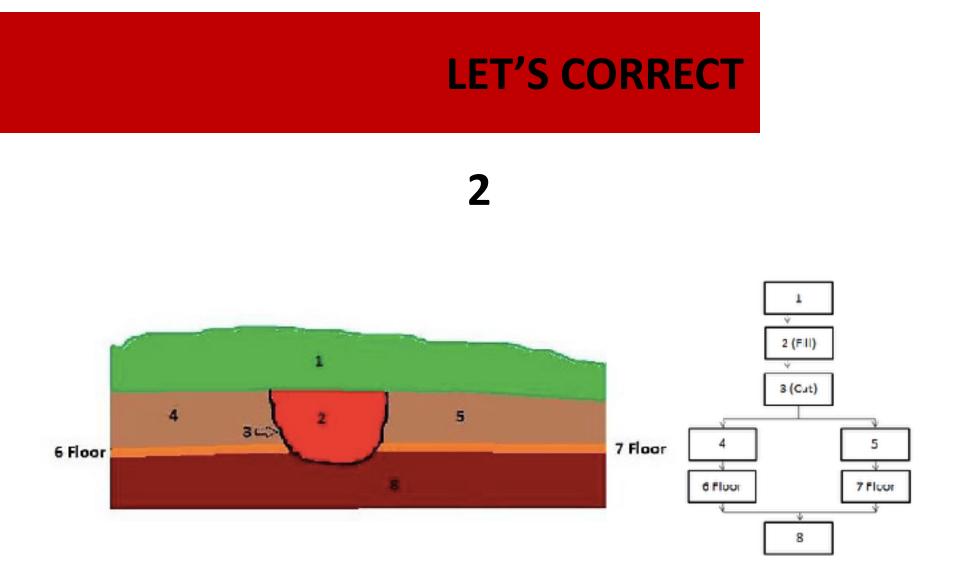




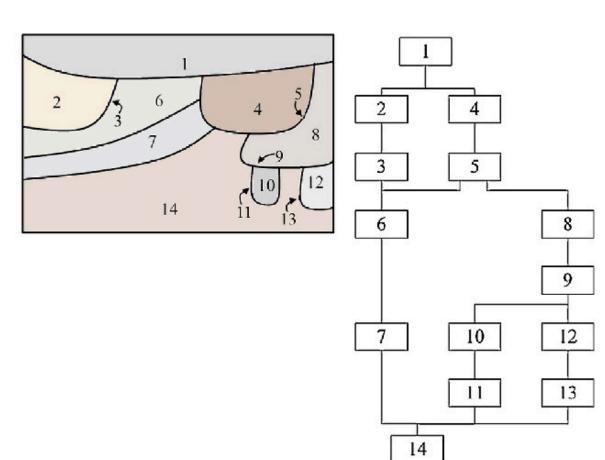
#### **LET'S CORRECT**



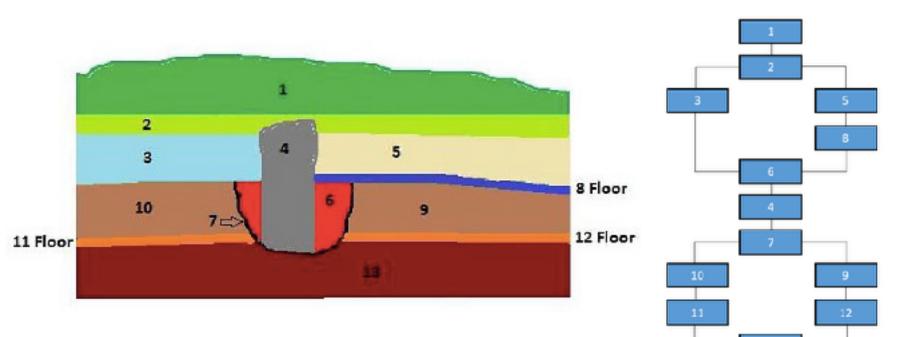
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#### **LET'S CORRECT**



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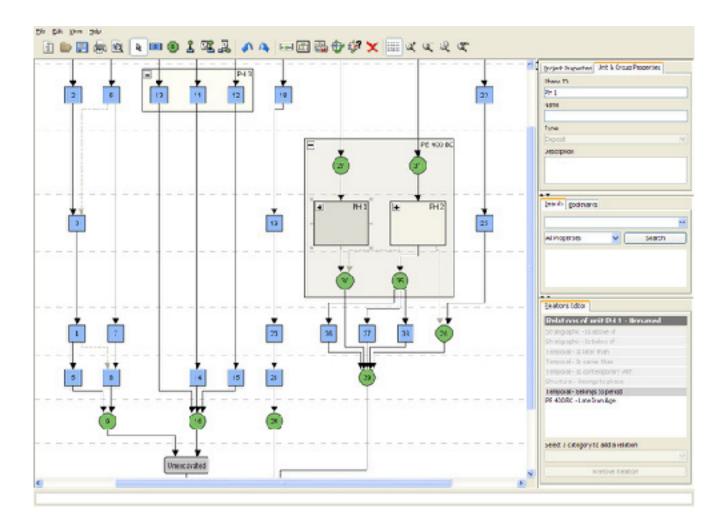


#### HARRIS MATRIX COMPOSER

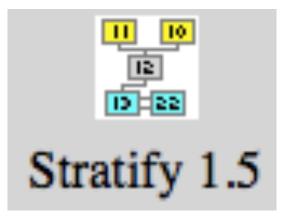
# Harris Matrix Composer v2.06

http://harrismatrix.com/

#### HARRIS MATRIX COMPOSER







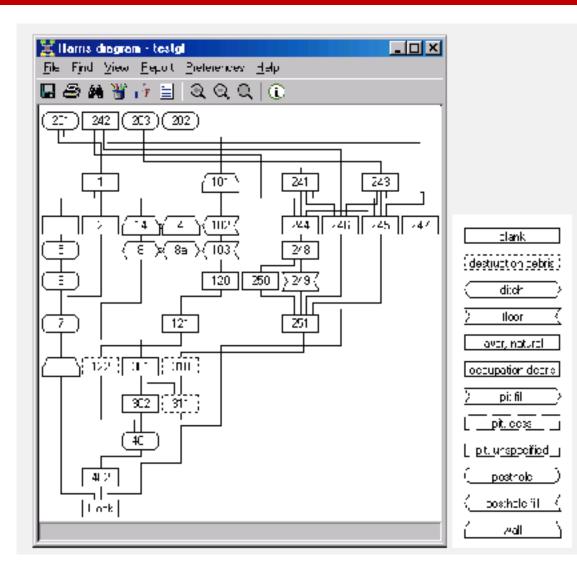
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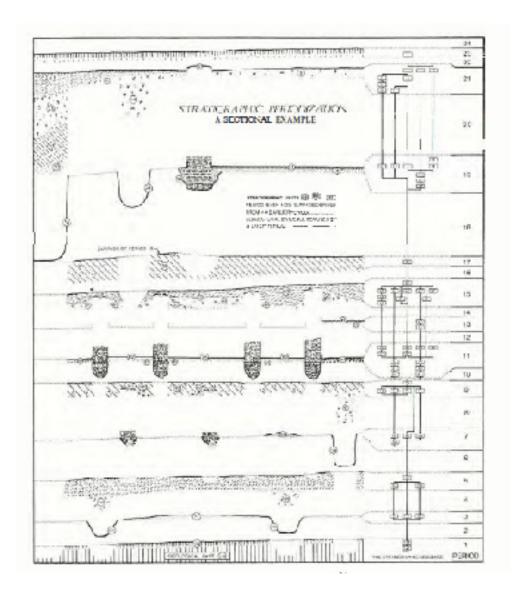
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WALADU Cascade Training University Residential Centre of Bertinoro

10th-15th December 2018

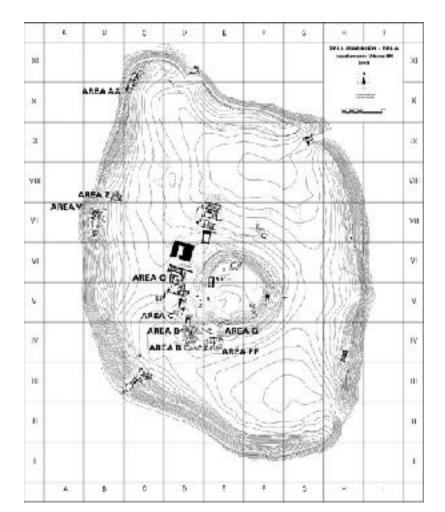
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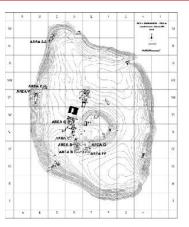


#### DATA FROM ARCHAEOLOGICAL EXCAVATION

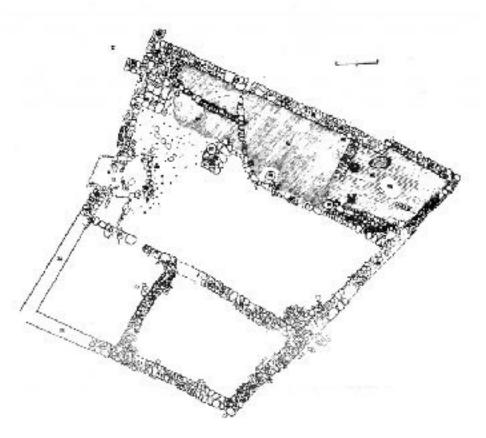
- Stratigrafic data
- Topographic data
- Material culture (Pottery and Small Finds)

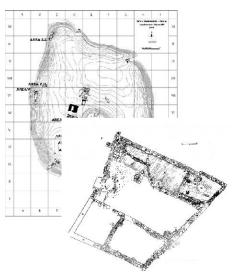
#### **Contour map**



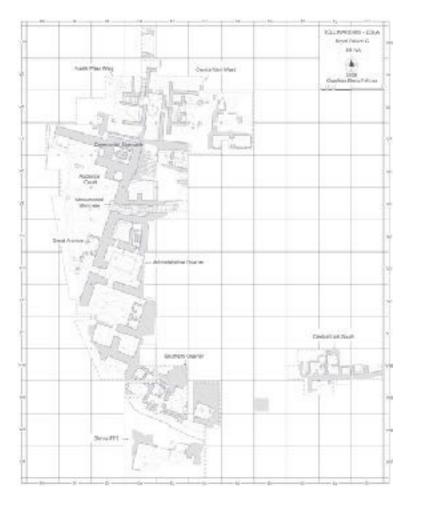


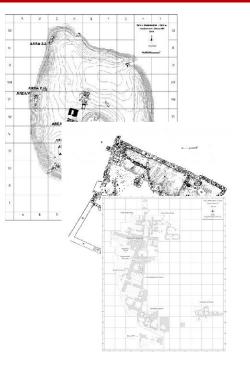
#### **Detailed planimetry**





#### **Schematic planimetry**



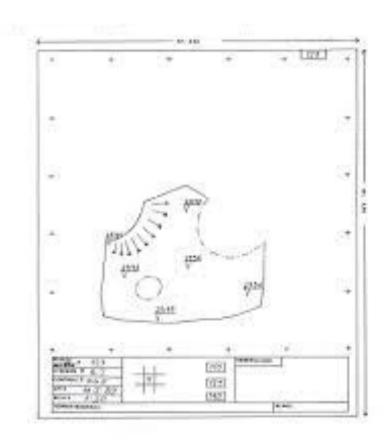


#### **Composite planimetry**

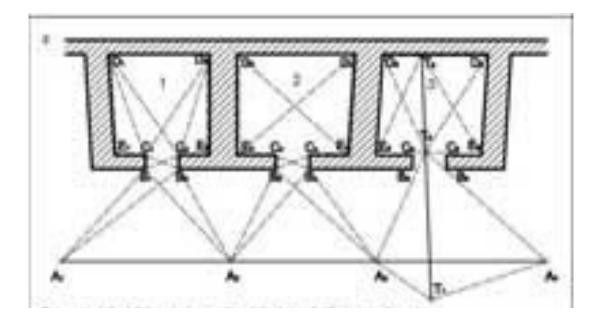




#### Stratigraphic Unit planimetry



#### **Manual relief**



#### **Total station**

#### **Optical Level**

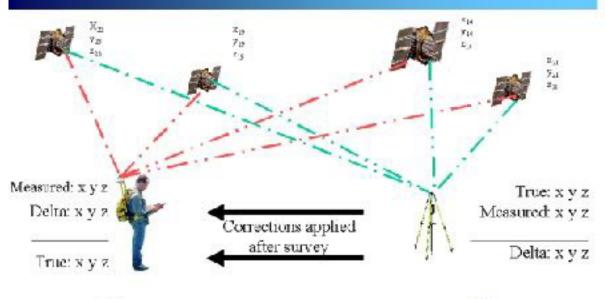




#### GPS

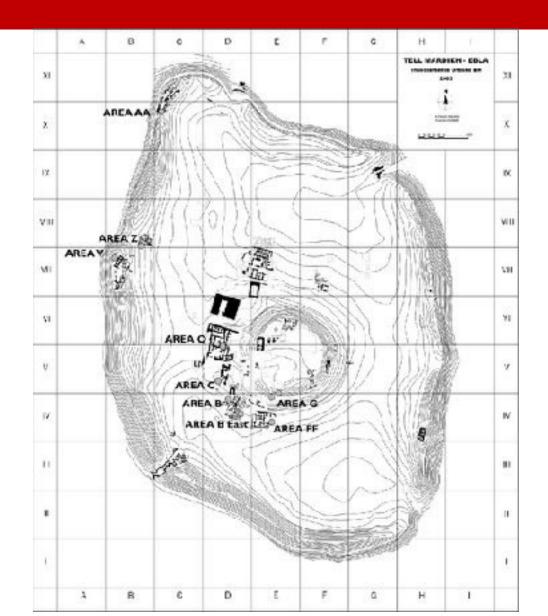


#### **Differential GPS**



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## **Topographic data**



#### Digitalization of the topographic data

Photogrammetry is the technique of taking multiple overlapping photographs and deriving measurements from them to create 3D models of objects or scenes. Using appropriate software, images of land masses are converted into maps, 3D models or drawings. In aerial UAV photogrammetry, a drone captures overlapping images using waypoint navigation technology, which provides the precise flight path essential in this type of imaging. Specialized software integrates the overlapping images into one. Further processing converts the image into the desired map of 3D model.

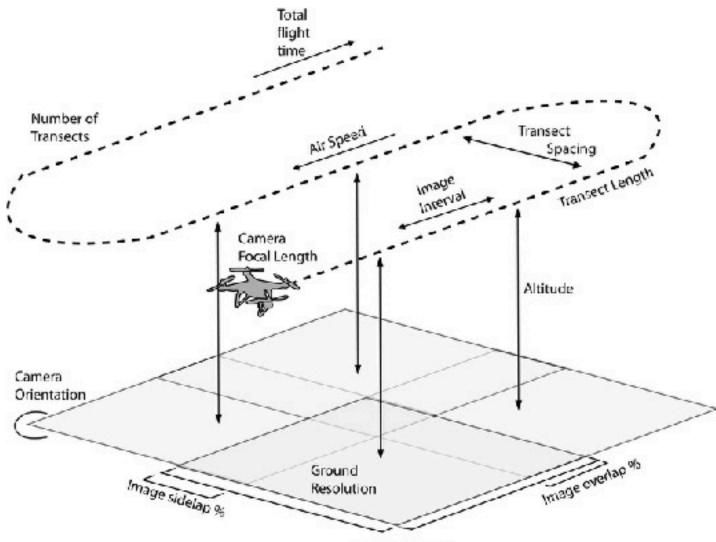
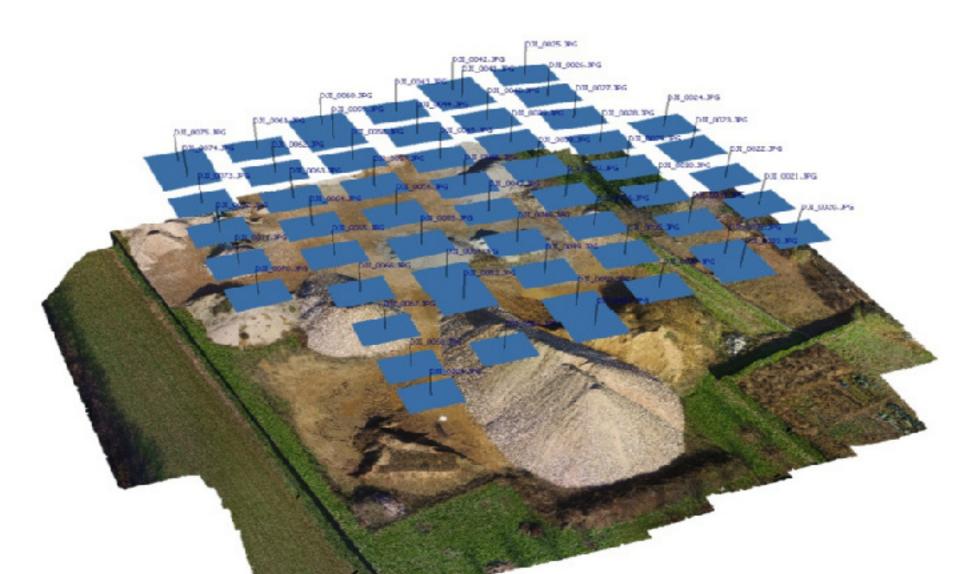
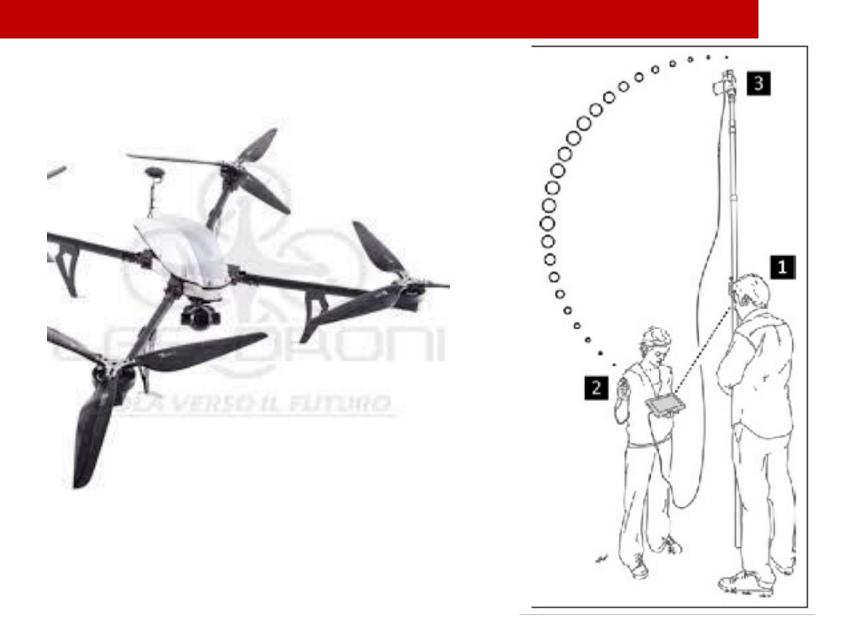
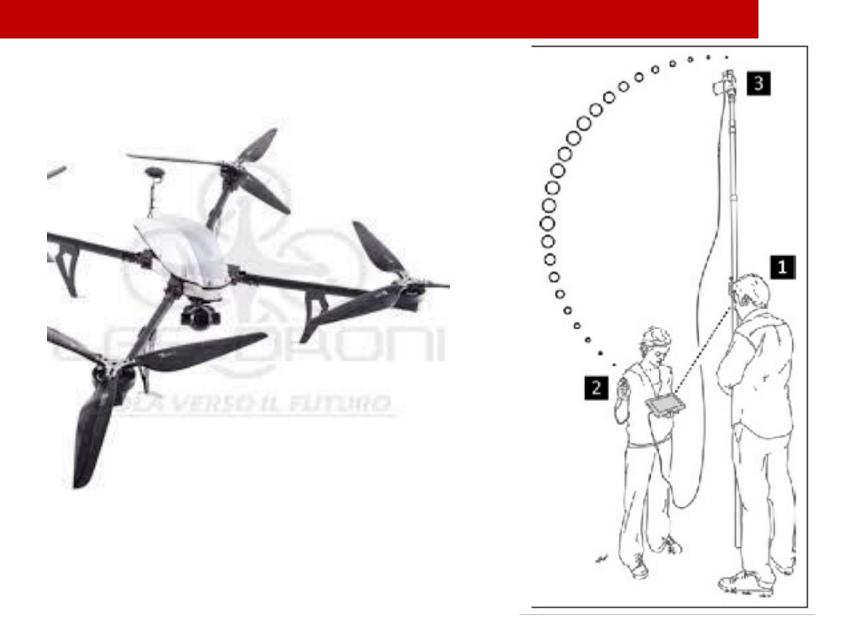


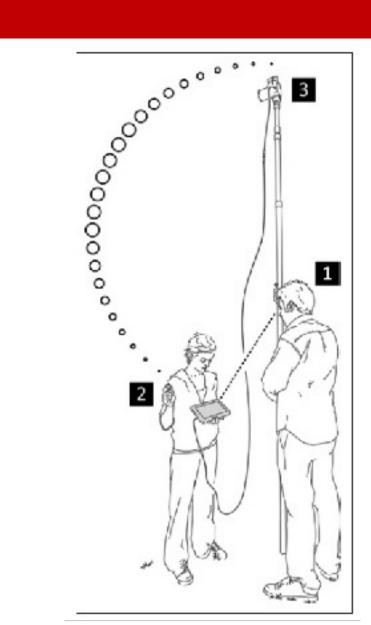
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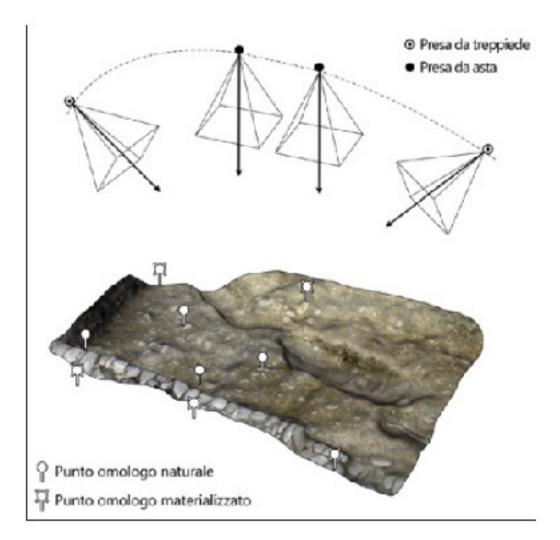








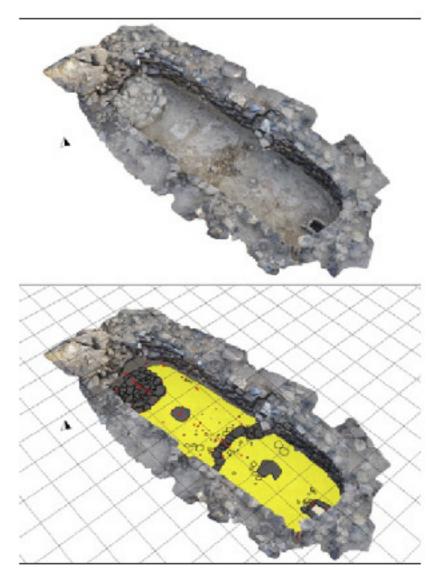




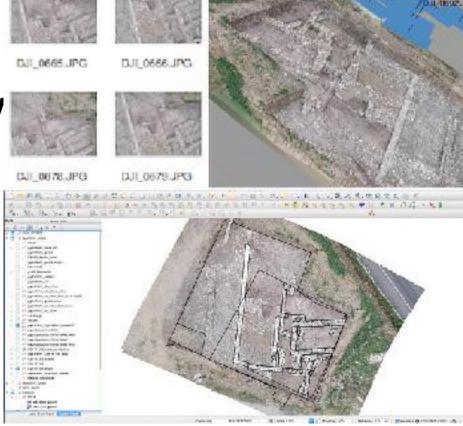


# Virtual reconstruction of stratigraphy

#### Editing of the 3D model on CAD or GIS



### Production of orthophoto which can be edited to produce regular planimetry



- Add Photos (or Add Folder containing all photos from your shoot)
   This first step loads all of your raw images into the software's interface.
- Align Photos

 the first processing step compares the pixels in your photos to find matches and estimate camera locations and 3D geometry from them

• Build Dense Cloud

○ once satisfied with the alignment, the sparse point cloud (a mere fraction of the total data) is processed into a dense cloud in which each matchable pixel will get its own X, Y, Z location in 3D space

• Build Mesh

 this step connects each set of three adjacent points into a triangular face, which combine seamlessly to produce a continuous mesh over the surface of your model

• Build Texture

 In the final step, the original images are combined into a texture map and wrapped around the mesh, resulting in a photorealistic model of your original object.

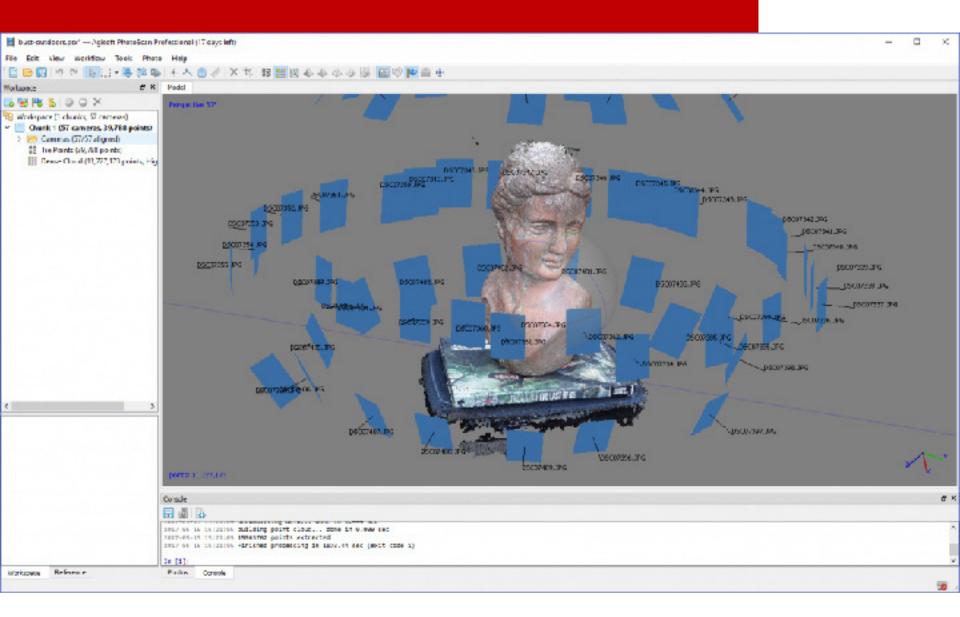




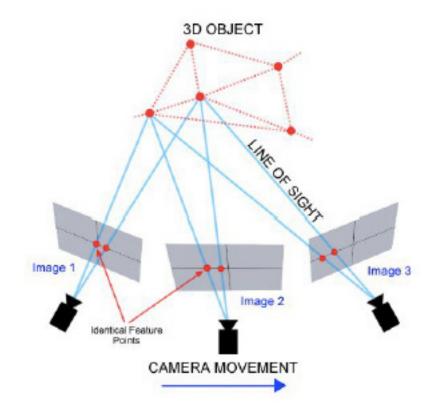
#### WALADU Cascade Training

University Residential Centre of Bertinoro 10th-15th December 2018





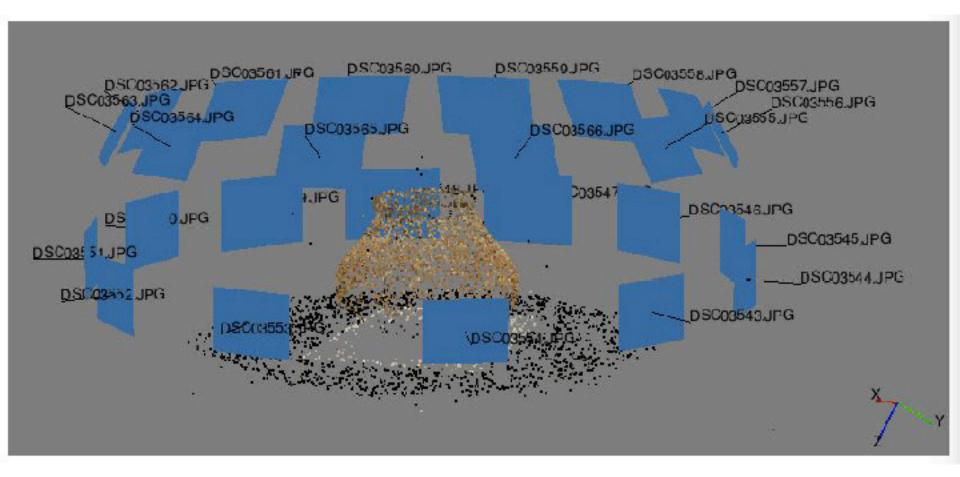




- Add Photos (or Add Folder containing all photos from your shoot)
   This first step loads all of your raw images into the software's interface.
- Align Photos

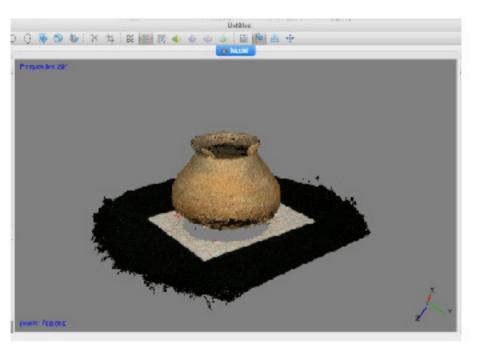
 the first processing step compares the pixels in your photos to find matches and estimate camera locations and 3D geometry from them

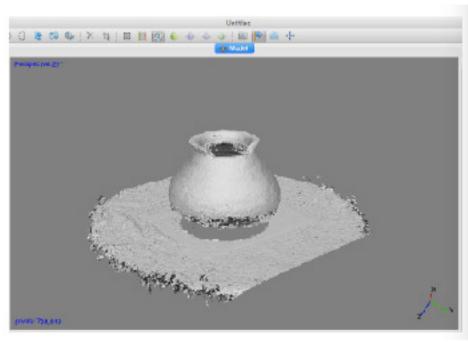




Build Dense Cloud

○ once satisfied with the alignment, the sparse point cloud (a mere fraction of the total data) is processed into a dense cloud in which each matchable pixel will get its own X, Y, Z location in 3D space



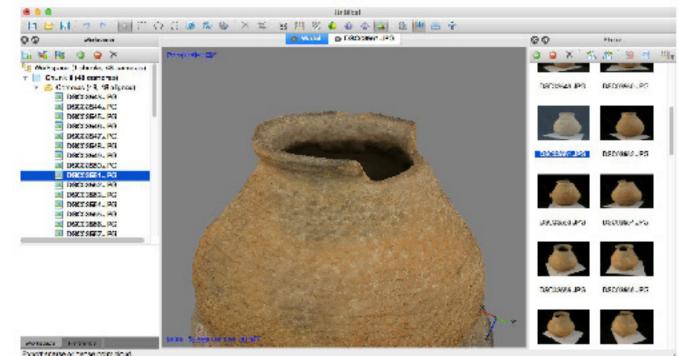


#### • Build Mesh

 this step connects each set of three adjacent points into a triangular face, which combine seamlessly to produce a continuous mesh over the surface of your model

• Build Texture

 In the final step, the original images are combined into a texture map and wrapped around the mesh, resulting in a photorealistic model of your original object.



### Archaeology from Dig to Lab: Post Excavation Research





#### WALADU Cascade Training

University Residential Centre of Bertinoro 10th-15th December 2018





- To present "new" tools for the management of the archaeological data
- To confront with all of you about the data management, comparing our expertise
- To create a "new" model of data management

### **Post-Excavation research**

Post-excavation Analysis constitutes processes that are used to study archaeological materials after an excavation is completed. Since the advent of "New Archaeology" in the 1960s, the use of scientific techniques in archaeology has grown in importance. This trend is directly reflected in the increasing application of the scientific method to post-excavation analysis. The first step in post-excavation analysis should be to determine what one is trying to find out and what techniques can be used to provide answers. Techniques chosen will ultimately depend on what type of artefacts one wishes to study. Here are some outlines processes for analysing different artefact classes and describes popular techniques used to analyse each class of artefact. Keep in mind that archaeologists frequently alter or add techniques in the process of analysis as observations can alter original research questions.



- 1- Radio Carbon Dating C14
- 2- Ceramic Petrographic Analysis
- **3- Isotopic Analysis**
- 4- aDNA and Archaeogenetics



- 1- Why Radio Carbon Dating C14?
- To create absolute chronological sequence of the site
- To illustrate the typological development of certain pottery assemblage

#### **Definition:**

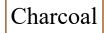
Radiocarbon dating or C-14, is a method for determining the age of an object containing organic material by using the properties of radiocarbon, a radioactive isotope of carbon.

#### **Datable Materials :**

charcoal, wood, twigs, seeds, bones, shells, leather, peat, lake mud, soil, hair, pottery, pollen, wall paintings, corals, blood residues, fabrics, paper or parchment, resins, and water, among others.

Most commune Datable Materials from the Archaeological Excavation:

Bones (human/Animals)





Seeds

Leather

#### In Situ Materials:

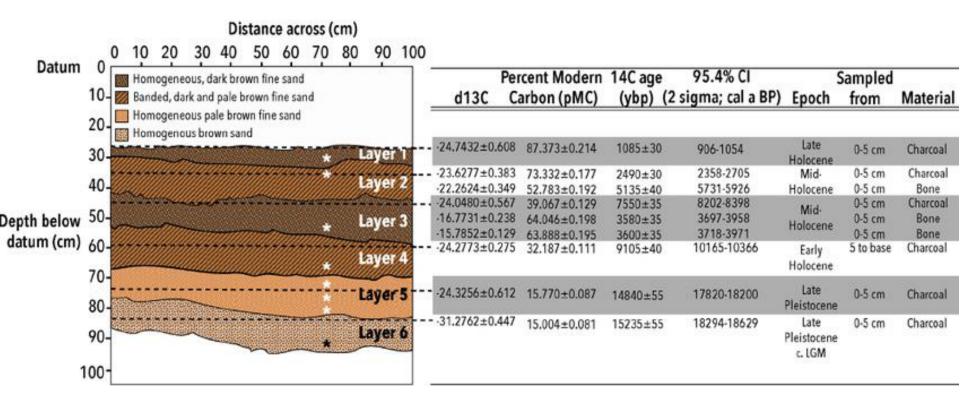
We should choose the secured archaeological context to have (the in situ vessels and their Contents. Only in from this materials we can Obtain secured chronological date

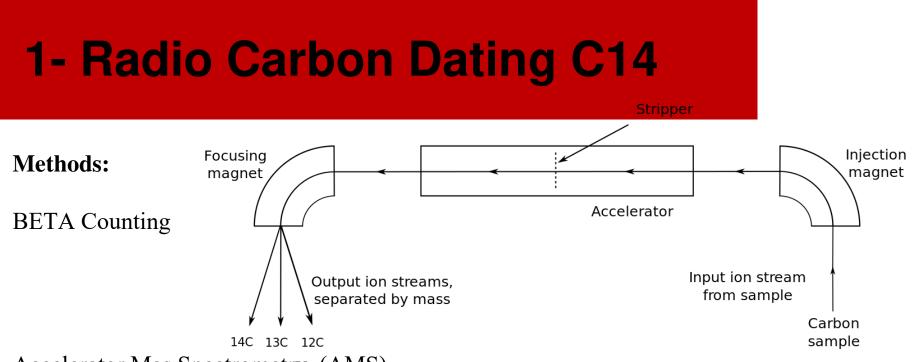


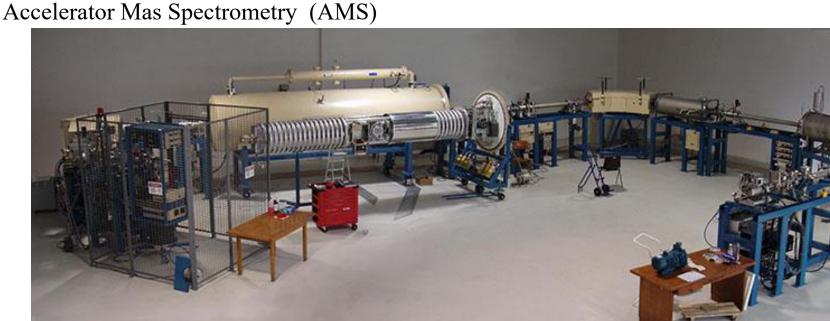




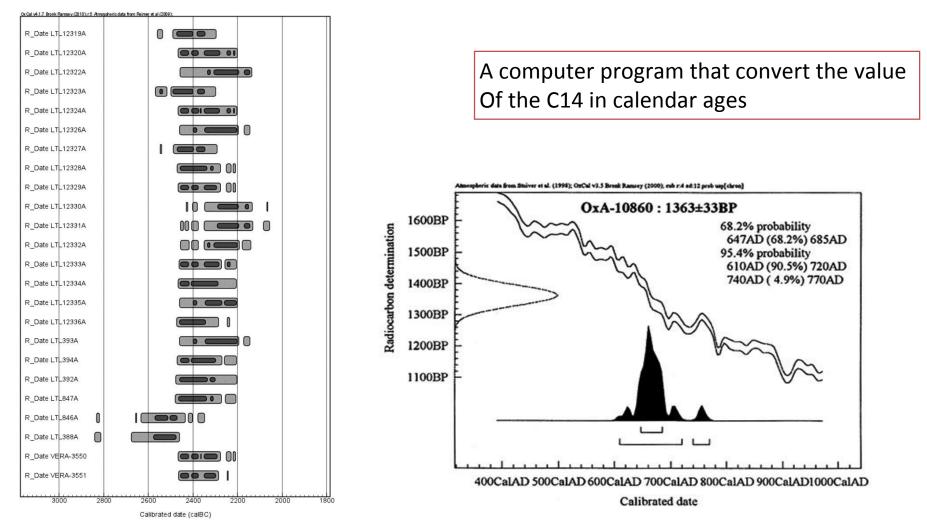
#### Stratigraphy and C14 Dating:







#### **Calibrated Date and the Chronological application:**





- 1-Which Materials we can't use for the C14 dating?
- 🗆 Iron
- □ Cooper
- Plastic
- HAll the previous choices

#### 2- Which one of the following materials is usually used in the C14 Dating

- □ Bones
- □ Charcoal
- $\Box$  Seeds
- All the previous answer

#### 3- Why we use the C14 Dating?

- To discover the ancient human diet
- □ To detect the climate change
- To build up an absolute chronology for the site
- $\hfill\square$  To discover the typological horizon of a certain culture



- 4- What is the most secured archaeological context to be used for the C14 dating?
- □ Materials from the pits
- ➡n situ materials
- □ Surface materials
- □ Non-stratified materials

#### 5- What a chronological sequence dose mean?

- An arrangement of the different occupational phases of the site
- □ The typological order of a pottery assemblage
- $\Box$  The different architectural structures in the site
- $\Box$  the gap between centre of the site and its and the periphery

#### 6- What is the most commune analytical method in the C14 analysis?

- □ BETA counting
- AMS (Accerlator Mass Spectrometry)
- □ C13 Detector
- $\Box$  iPhone Application



Can Stock Photo

#### 7- What is a radio carbon calibration ?

A Radio carbon years converted in calendar ages

□ A tool to convert chronological sequence to years calendar

- □ A Computer program to design maps
- □ A tool to read the stratigraphic sequence



- **1- Why Ceramic Petrographic Analysis?**
- To create pottery groups based on the clay materials
- To illustrate the geographical provenance of the pottery of a certain culture
- To illustrate the trade and cultural interaction within a Geographical area
- To explain about the socio-economic system through the pottery distribution in the site

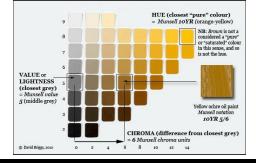
# **1- Petrographical Analysis**

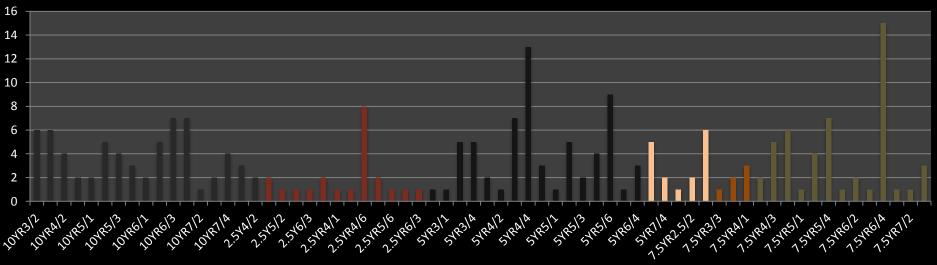
#### **Definition:**

A laboratory-based scientific archaeological technique that examines the mineralogical and microstructural composition of ceramics and other inorganic materials under the polarised light microscope in order to interpret aspects of the provenance and technology of artefacts.

#### Munsell color chart

In colorimetry, the Munsell color system is a color space that specifies colors based on three properties of color: hue, value (lightness), and chroma (color purity).

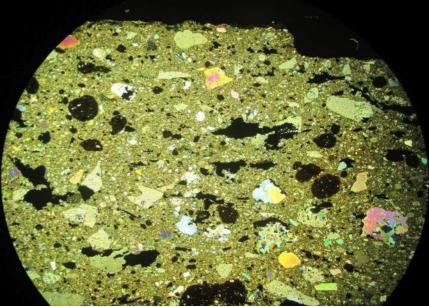




#### **Basic Microscope images:**

The images give basic information about the presence of different components of the ceramics fabrics that can be Used in creating ceramic groups of certain culture

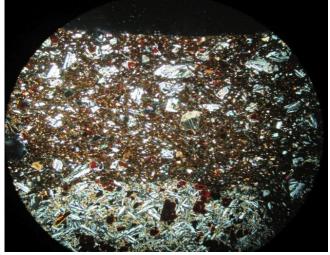
#### Group II Calcite-rich



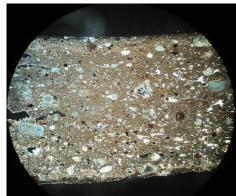
Group III Quartiz Rich



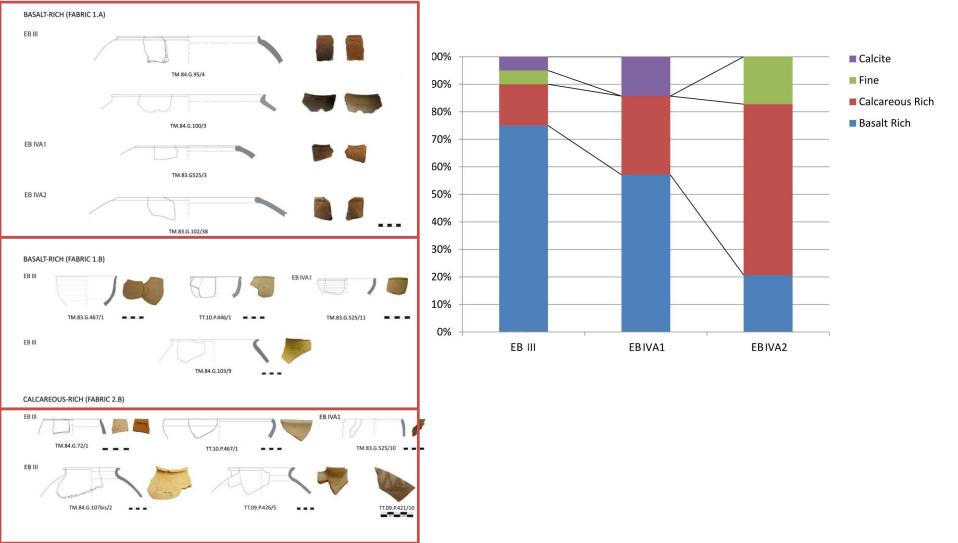
#### Group I Basalt-Rich



### Group IV Limestone-Rich

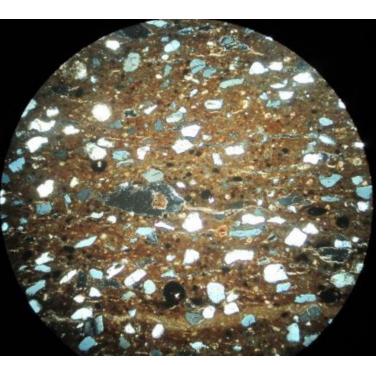


#### Ceramic Grouping according to the chronological phase and clay used



How these information could contributes in the archaeological research?





**PREPARATION:** 

**purification** 

<u>Tempera selection  $\rightarrow$  select technology</u>

TEMPERATURE OF FIRING

<750 °C, 750-850 °C

DECORATIONI: Red → hematite Black/Gray/blue → magnetite

Clay Components

**SUPPLYING:** 

The materials location is always changing

etropgraphical Group

rovenience

### **Technological Level**

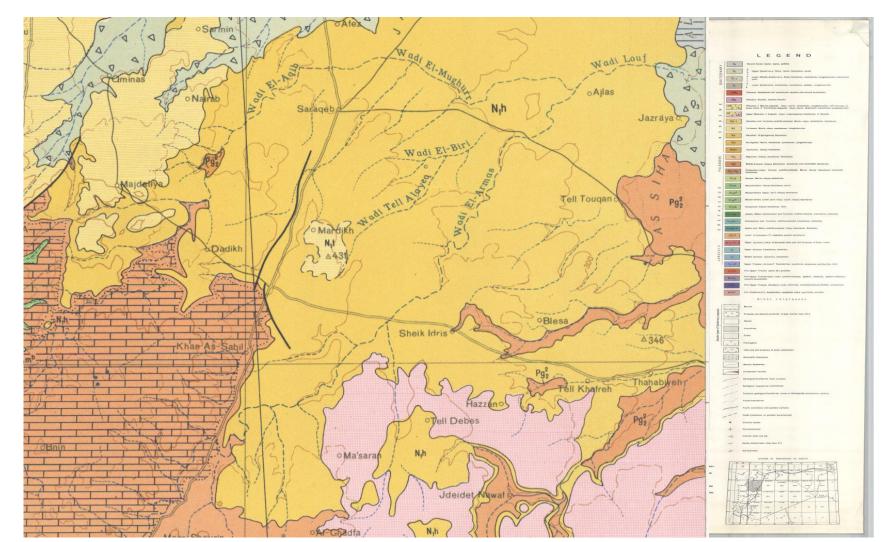
- Petrographical characterization
   Preparation and raw materials selection
- ➢Fabrication type
- Decoration craterisation
- ➢Firing technique

### <u>Provernience</u>

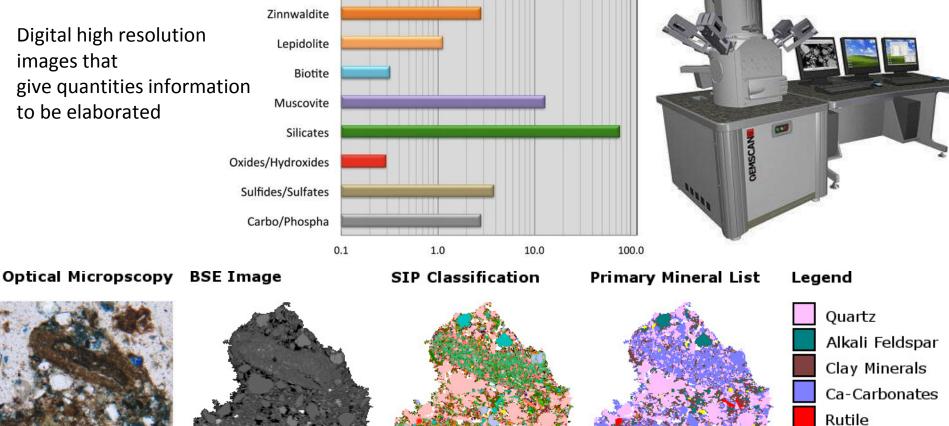
Composition characterizationLocal or imported (Distribution)



#### Materials provenance using the geological maps



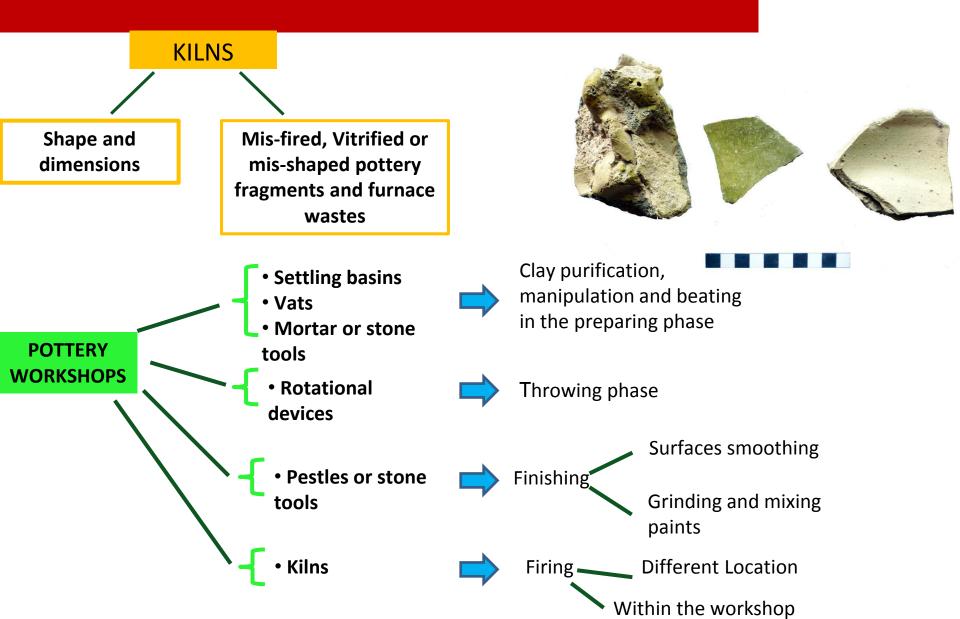
#### **QEMSCAN®**



**1** μm

Siderite

Pyrite





#### 1- What is a Petrographic analysis?

- □ Typological studies of pottery
- □Shimical analysis of the pottery clay
- □Stratigraphical studies
- □An analysis that could carried out by using the compiuter

2- Which materials can we use to carry out the petrographic analysis

- □ Big jars made by pottery
- □Thin section pottery vessels
- $\Box {\sf Thick}$  section vessels made by different kind of pottery
- $\hfill\square$  All the previous answers
- 3- Why we use the Munsell?
- $\Box$  To take photo of the vessels
- $\Box$ To take the dimension of the objects
- □To make a secure classification of the pottery based on its colors
- $\Box \ensuremath{\mathsf{To}}$  carry our chemical analysis on the pottery



- 4- Why we use the petrographic analysis?
- $\hfill\square$  To know the provenience of certain pottery vessels
- $\hfill\square$  To explain about the temperature of firing
- $\Box$  To illustrate the clay components
- All the previous answer
- 5- Which one of the following answer help us in knowing the provenance of the raw materials?
- □ Simple Camera photos
- Objects drowning
- HGeological maps
- □ Simple geographical maps
- 6- What a QEMSCAN is?
- A lap facility that give us quantities values of the ceramic chemical components
- □ A drone that used the archaeological Survey
- $\hfill\square$  A tool that calculate the dimension of the site
- □ A very modern Digital Camera



- 7- Which one from the following analysis can be integrated with the Petrographic studies
- DNA Analysis
- □ Isotope analysis
- C14 dating
- Geomorphological analysis
- 8- Which one of the following answer is a result of the petrographic analysis?
- Better Understanding of the production technology
- $\hfill\square$  Chronological sequence of the pottery assemblage
- $\hfill\square$  High solution images of the excavation
- $\hfill\square$  Three dimensional survey of the archaeological landscape
- 9-As a result of the petrographic studies we are able to:
- $\hfill\square$  Understand the distribution of the various typological forms in the sites
- $\hfill\square$  To understand the cultural interaction between the different civilization
- $\hfill\square$  Create a ceramic classification based on its materials
- Hall the previous answer

# Topics

- 1- Why Isotopic Analysis?
- To reconstruct the human dietary habits in certain chronological phase
- To explain about the human movement and cultural interaction between the
- To detect the climate change and change in human food web

#### **Definition :**

Isotope analysis is the identification of isotopic signature, the abundance of certain stable isotopes and chemical elements within organic and inorganic compounds. Isotopic analysis can be used to understand the flow of energy through a food web, to reconstruct past environmental and climatic conditions, to investigate human and animal diets in the past, for food authentication, and a variety of other physical, geological, paleontological and chemical processes.

#### Use in Archaeology:

Archaeological materials, such as bone, organic residues, hair, or sea shells, can serve as substrates for isotopic analysis. Carbon, nitrogen and zinc isotope ratios are used to investigate the diets of past people; These isotopic systems can be used with others, such as strontium or oxygen, to answer questions about population movements, climate change and cultural interactions, such as trade.

#### Materials

Bones (human and animals) Teeth and soil





There are many stable isotopes that are used by archaeologists, but the ones that are most widely analysed are:

**oxygen**: 180 (0-18) and 160 (0-16), with their ratio (180/160) referred to as  $\delta$ 180 (delta-18-0) values. (for the climate change)

**nitrogen**: 15N (or N-15) and 14N (or N-14). Again, the ratio between the two (15N/14N) is given as  $\delta$ 15N (delta-15-N) values. (Human and Animals diet)

**carbon**: 13C (or C-13) and 12C (or C-12). The ratio between the two (13C/12C) is normally referred to as  $\delta$ 13C (pronounced: delta-13-C) values. (Human and animals diet)

**strontium:** 87Sr (Sr-87) and 86Sr (Sr-86). Strontium isotope ratios are referred to as 87Sr/86Sr ratios. **(for the human mobility)** 

**Oxygen**: 180 (0-18) and 160 (0-16), with their ratio (180/160) referred to as  $\delta$ 180 (delta-18-0) values. (for the climate change)

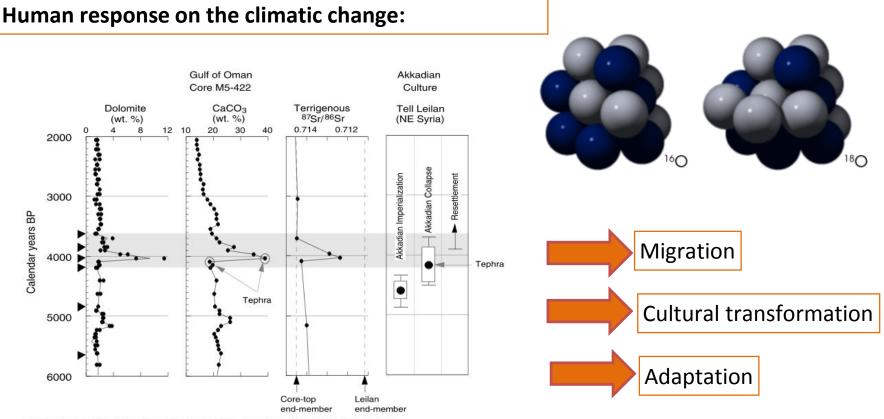
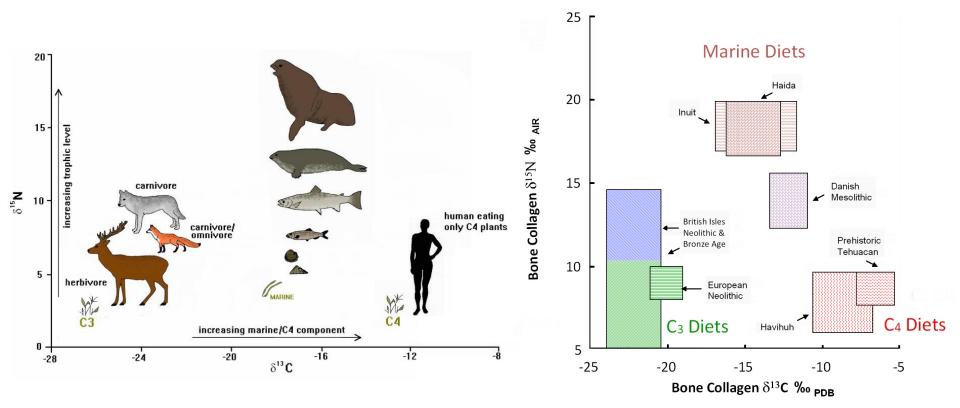


Fig. 4. Mesopotamian paleoclimate and the collapse of the Akkadian empire.

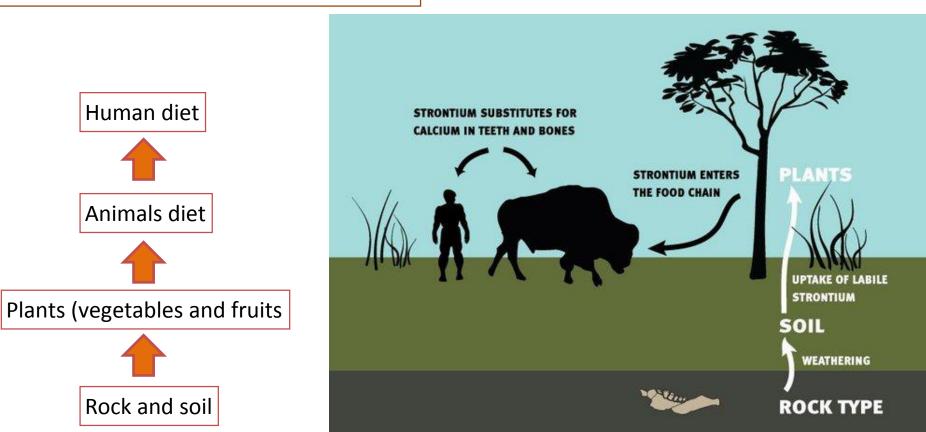
**Carbon**: 13C (or C-13) and 12C (or C-12). The ratio between the two (13C/12C) is normally referred to as  $\delta$ 13C (pronounced: delta-13-C) values. (Human and animals diet)

**Nitrogen**: 15N (or N-15) and 14N (or N-14). The ratio between the two (15N/14N) is given as  $\delta$ 15N (delta-15-N) values. (Human and Animals diet)



**strontium:** 87Sr (Sr-87) and 86Sr (Sr-86). Strontium isotope ratios are referred to as 87Sr/86Sr ratios. **(for the human mobility)** 

Human and Animals diet (simple overview)



#### 1- What a stable Isotopes is?



Can Stock Phot

The chemical studies of the pottery
 The Level of water in the human bones
 Chemical elements in the human and animals bones

□ The genetic code of human group

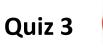
#### 2- Why we use the Stable Isotope analysis

To illustrate the climate change in certain period
 To explain about the human Ancient die
 To know more about the human movements

All the previous answers

#### 3- why we use the Stable Oxygen analysis?

- **T**o detect about the climate change
- $\Box$  To illustrate the typological change in the pottery assemblage
- □ To discover the human ancient diet
- riangle To construct the human ancient traditions



- 4- Which one of the following kind of analysis can detect the human movements
- Stable Nitrogen Isotope
- Stable Oxygen Isotope
- □ Study of the cultural horizon
- □ Petrographic analysis

#### 5- Where can we find the Strontium Isotope

- □ In the human bones
- $\Box$  In the animals bones
- $\Box$  In the organic remains
- All the previous answer

#### 6- Where we can find the Stable Oxygen Isotope?

- $\Box$  From the bones
- $\Box$  From the ceramic
- From the soil
- $\Box$  From the iron



- $\Box$  From the bone
- $\Box$  From the teeth
- **From the Animal bones**
- 🖶 All the previous answer

### 8- What kind of other analysis could be integrated with the Stable Isotope Analysis?

- 📲 Radio Carbon
- Typological studies
- $\Box$  DNA Analysis
- Geomorphological analysis

#### 9- What is the most important impact of the climate change

- □ Cultural transformation
- $\Box$  Human migration
- $\Box$  Adaptation of new life style and cultural interaction
- All the previous answers

# Topics

- **1- Why Archaeogenetics?**
- To illustrate the genetics distance between tow or more human groups
- To detect the genetics change in such site through its different phases
- To explain about the cultural interaction and transformation

#### **Definition:**

Archaeogenetics is the study of ancient DNA using various molecular genetic methods and DNA resources. This form of genetic analysis can be applied to human, animal, and plant specimens. Ancient DNA can be extracted from various fossilized specimens including bones, eggshells, and artificially preserved tissues in human and animal specimens. In plants, Ancient DNA can be extracted from seeds, tissue, and in some cases, feces. Archaeogenetics provides us with genetic evidence of ancient population group migrations, domestication events, and plant and animal evolution.





atic process

external acoustic meetus

occipital margin

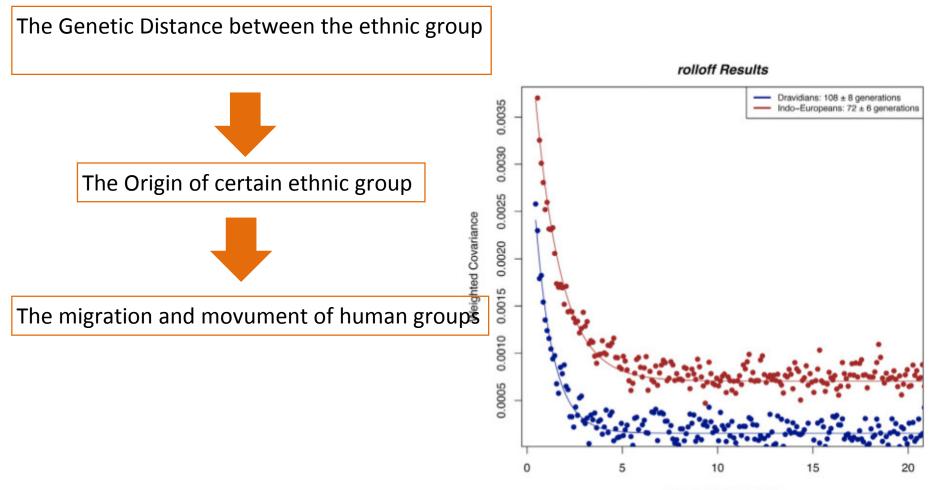
maxiold process

#### Materials to analyze for the human aDNA Teeth **Petrosal Bone** Can Stock Photo squama, cerebral b parietal margin а surface b Os parietale petrous part, C Os occipitale superior d Os sphenoidale e Os zygomaticum border parietal margin squarte. temporal surface petrous part occipital margin sphenoidal margin

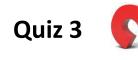
arcuate eminence

apex of petrous part

#### **Benefit in Archaeology:**



Genetic Distance (cM)



Can Stock Phot

#### 1- What is the Archaeogenetics?

- The Study of human bones
   The study of human migration
   The ancient DNA analysis
- The ancient DNA analysis
- $\Box$  The Analysis of ancient diet

#### 2- Where can we obtain the human ancient DNA ?

- □ From the plants
- □ From the water
- rom the teeth and Bones
- □ From the soil

### 3- Why we should study the Ancient DNA?

- $\hfill \Box$  To illustrate the origins of certain ethnic group
- $\hfill \Box$  To illustrate the genetics distance between the different population
- To illustrate the genetic relation of the certain site inhabitants in its different phase of occupation of the certain site inhabitants in its different phase of occupation of the previous answer



- 4- Why should we choose the petrosal bones to extract the aDNA?
- To avoid the contamination
- □ Because it is big bone
- □ Because we don't have other bones
- □ Because it can't contain other chemical elements

#### 5- Where can we carry out the aDNA analysis

- $\Box$  In the university
- □ In the excavation field
- 🐨 n a special laboratory
- $\Box$  In the hospital

#### 6- Why should we be carful when excavate the bones from the excavation?

- $\Box$  To avoid the contamination
- $\Box$  To keep the bones in the good state for the analysis
- $\hfill\square$  To use them in other morphological and anthropological strudies
- All the previous answer



### Conclusion

### WHY WALADU IS IMPORTANT?



WALADU Cascade Training,

**Bertinoro 11th-15th December 2018** 



### THE AIMS OF WALADU

### <u>To improve Iraq</u> <u>scholars teaching</u> <u>and research quality</u>

<u>To increase the</u> <u>students</u> <u>opportunities in the</u> <u>Iraqi labour market</u>

To enhance EU-Iraq academic cooperation





### HOW TO IMPROVE IRAQI SCHOLARS AND RESEARCH QUALITY



DEVELOPING NEW TEACHING AND RESEARCH METHODOLOGIES





IMPROVING UNIVERSITY FACILITIES



NEW COURSES SYLLABI

+

### WHAT WE HAVE ALREADY DONE?





#### BAGHDAD

- GIS 1.
- Sumerian laguage 2.
- 3. Archaeology of Egypt

- Museum studies 1.
- 2. Islamic pottery
- 3. Abbasid architecture
- 4. Egyptian arab architecture











#### QADISIYAH



- 1. Akkadian language
- Ummayad architecture 2.
- 3. Islamic manuscripts





New courses syllabi already produced during the WP2 training



New courses syllabi to be produced during the Cascade Training in Bertinoro

### **INTERNSHIPS**

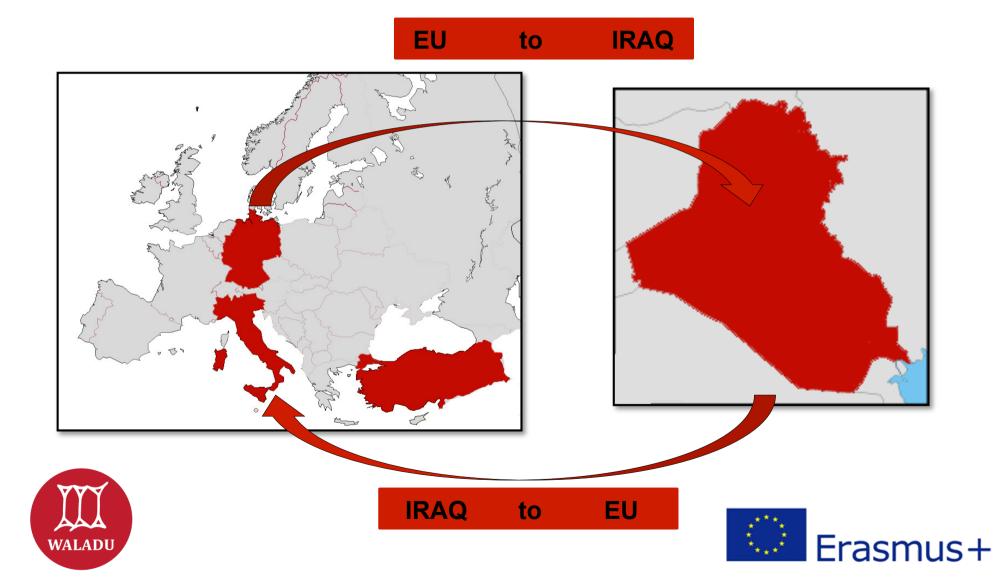


Internships are important to support the employability of BA students in Archaeology





### WALADU PHILOSOPHY



### INTERNATIONALIZATION OF HIGHER EDUCATION



WALADU Cascade Training,

Erasmus+

**Bertinoro 11th-15th December 2018** 

### INTERNATIONALIZATION IN THE WALADU PROJECT

To foster international collaborations between the EU and the Iraq higher education istitutions for the exchange of academic knowledge at any level, by framining them in a recognized and internationally regulated network.





### WHAT IS INTERNAZIONALITAZION IN HIGHER EDUCATION?

The process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of postsecondary education <sup>1</sup>

Internationalization of higher education is the top stage of International relations among universities and it is no longer regarded as a goal in itself, but as a means to improve the quality of education. The knowledge translation and acquisition, mobilization of talent in support of global research and enchantment of the curriculum with international content are considered to be the benefits of internationalization of higher education.<sup>2</sup>

<sup>1</sup> Knight, Jane (2003). Updating the definition of internationalization. International Higher Education. pp. 2–3.
 <sup>2</sup> Tahira Jibeen, Masha Asad Khan (2015). Internationalization of Higher Education: Potential Benefits and Costs





## WHY INTERNATIONALIZATION IS SO IMPORTANT?

- Sustaining and growing science and scholarship through dynamic academic exchanges;
- Building social and economic capacity;
- Improving academic quality;
- Revenue generation and brain gain;
- Diversifying and enhancing the learning environment in your Country;
- Internalization allows us to transfer to a different environment, where we can understand the connections between the local environment in which they live, and the global environment;





### **INTERNATIONALIZATION OF THE MINDS**

Internazionalization engends the "international characteristics" fostered in our minds:

- International-mindedness;
- Open mindedness;
- Second language competence;
- Flexibility of thinking;
- Tolerance and respect for others;





## HOW CAN I INTERNATIONALIZE MY CURRICULUM AND COMPETENCIES?





## HOW CAN I INTERNATIONALIZE MY UNIVERSITY?





## ENGLISH LANGUAGES COURSES FOR ARCHAEOLOGY IN THE EDUU PROJECT

"English Language for Archaeology" course took place in the months of July, August and September 2018 at the Universities of Baghdad, Kufa and Qadisiyah. The main objective of the course was to improve the english language skills with a specific focus on Archaeology of officials from the Iraqi State Board of Antiquities and Heritage (SBAH), the Iraqi Museum (IM) and the professors, researchers and students of the Universities in order to empower them in carrying out research and fieldwork activities and seizing the opportunities deriving from internationalization and mobility.











## WALADU CASCADE TRAINING DECEMBER 2018, BERTINORO, ITALY







### **INTERNATIONAL CONFERENCIES AND WORKSHOPS**





#### UNCH. h. 12.30

Saturday 20 th January afternoon – Sultana I	Royal Hall, Al-Qadisyah district, Al-Najaf, h 2 pm
Tim Harrison	University of Toronto
Computational Research on the Ancient NearEast (CRANE): La	rge-Scale Data Integration and Analysis in Near Eastern Archaeology
Carlo Lippolis	University of Turin
Iraqi-Italian cooperation in the Iraq Museum of Baghdad	
Augusta McMahon	Cambridge University
Herd Animal Management Strategies in Early Dynastic Sum	
Munther Ali The Natural Resources of Marshlands and how to Exploit T	University of Baghdad
Jacob Jawdat A Brief History of Pi-kasî (Tell Abu Intik): New Remarks and	State Board of Antiquities and Heritage, Baghdad
A Brief History of Pi-kasi (Tell Abu Intik): New Remarks and	Viewpoints
COFFEE BREAK 4.15 - 4 pm	
Fawaz H.H. Al-Naish	Mosul University
The Relationship Between Geomorphology and Archaeolog	ical Heritage in Iraq
Nawala al-Mutawalli	University of Baghdao
Agricultural Society of Umma Province in the Light of Ur II	I Cuneiform Texts
Saad Bashir Eskander	University College London
Resorting to International Conventions and Instruments in Recovery	ring Illicitly Seized Archaeological Objects: Iraqs Experience since2003
Carrie Hritz	Oriental Institute, University of Chicago
Reading Relict Landscapes: Cities, Marshes and remote ser	ising
Abbas al-Hussainy	Qadisiyah University
Results of the 2016-2017 Survey of Dagharah-Sumer Area	(North-East of Dewaniyah)





### **ONLINE TRAINING COURSES**

	ALMA MATER STUDIORÚM UNIVERSITÀ DI BOLOGNA	
	COURSES	giulia.scazzosi2@unibo.it 👻
My Courses	Museums and Society - EDUU         Project -         MUSE101         Started - Oct 10, 2018         Ends - Jan 01, 2019	
ALMA MATER STUDIORUM ABOUT	FIND COURSES	OPENECK





## APPLYING FOR INTERNATIONAL PROJECTS AS PARTNER UNIVERSITY

- Erasmus plus Capacity building in Higher Education;
- EuropAid Civil Society Organization;
- Horizon 2020;









## WALADU Cascade Training

University Residential Centre of Bertinoro 10th-15th December 2018



WALADU

#### EARLY AND UMAYYAD ARCHITECTURE IN IRAQ

Lotters Faynes di Nayali University of Al Galician Email: per patient con Nets, wer draw Wald Officebours: Monday 11 - 12 and Tasalay 16 - 11 and Weincolay 5-10 or by appointment Reven and Jacob Jacob a do defed



#### Course description and objectives.

Issume architecture in the NL-Stability and Unsurvest researd contains many materials of the architectoplical sensities left by the issume state, which trapies from the periods of the propose Mohammand in the proof LAL mobile AL-Bached and/pot and theorite Conceyvel periodized to the last fail in the year LS2 ALL others we study within activity and how the Conceyvel periodized to the last fail in the year LS2 ALL others we study within activity and how the Conceyvel periodized to the failer of period to the conceyvel of the failer of the ALL of the study of the conceptual technic activity of the failer concey at 1 in heights the activity and the activity of the of the of period of the failer concey at 1 in heights become the back for the development affidancie architectures on the activity in an entropy, in the first Allowed and the Monophene met the operator res.

ALCOHOL: N

Reiversity of Cadicipals

In orderno obtain optimal results in increasing the modern? Increases of early infamic and Umarysid arthrototrate, this study copends on the student's states of samples of blance buildings in two period. This stepsion a trips and field with the arected optical attes.

#### Required Readings and materials

The readings are fixed in the cyllaborate required statements in the data cell state Preser Print presentation, some of which are not covered by the manuag and use the new section. But you take, elevation resource and education vesting to monoton and anthrobyleid sizes. Therefore, it is in inductive advantage out to miss the class sections more they will appear earthe unitate and final-

#### Students are required to read the following book fielder: attending the class

Hinveth, A. (2005). Archivary of pergin operative archiverury. Biglidid: Annuar Maneed. Sanois, Canad di Fao, 1987, Scoly Holani, Ardinarouw, Raghild Eagh, Meishannadi. 1987. Archivar of Kochia archiverury in Xuo, Baghild, Iraq. K. A. C. Cravnell, 1949. Jury Maxim Archiverum, Parsone, Oxford, Clarender Draws.

#### Grede

The grade for the Manuscripts and Islamic paintings material will be divided as follow:

Teefinteum	Architectures elements and the Architecture city of Bases and Kufa .	1145
Tresecond ourn	Building theory of Mosal and Wasi.	10%
TacFinal exam	For all your ivolum	325
Paper and Prosentation		10%
Amondance and class participation		10%
Qattmi		12%

The grade scale will be as follows:

Exclusion	99-45	
New good	\$2-19	
Cord	70-10	
/tverage	05-99	
Arregitable	63.58	

#### Attendance

There are three classes per week (MORMay, Tapeley), Wednessky and a tase of ninery minimas, The reason is hand in a new of minimum the intraling themate, reason, shally preparation and dimensions, attendance and areased. In addition to what has been mentioned maskets must take into account other things that a Fort the assessment of the level of the student including the absence of account other things that a Fort the assessment of the level of the student including the absence of account other three the course of the leason.

University of Qualicitysh

#### Cahadar

Basic and support material to be covered according to the homework/reports and their due catter.

Work	Subject
Wreb I	Introduction
	Typered buildings and elements of Archites ner-
	Rajab Mohammad, 1995. Phethiamic of Arabic creativeness in trag
	Bachcac, haq.p 12-18
Wiel: 2	City Barra (mossaw)
	Hadia, Javan, 2011. Planning the city of Barra in the first control
	£.F. p. 22-29
W10E 3	City Earra, parace of prince(Ltar AL-Amara).
	Hadia . Javan . 2011 . Planning the city of Sazra in the first contory
	1 H . p. 14.47
Work 4	City Essen (Houses)
	Al-Amed, Taher Mazaffa, 1940, Planning of Acat one Islamic
	Cities Hagndad, p. 546
Wet 5	City Ruth (mesques)
	Peter, Julies, (1996). Distinctly of Islanic orchitecture, London.
	p. 164 167
With the	City Eula, palace of prince (Dar AL/Amara)
	Kaddom, AL Janaupy (1967). Flanning the city of Kafa in the first
	controy J.H. Bajhdad. p. 40-37.
West 7	City Rath, (Houses)
	Rajal, Mohammad. 1989. The Dilamic of Arabic webitecore in Imag
	haphcac, kaq, p. 78-19.
	First Exam.
Wiel 8	City Mosul. (incique).
	V. A. C. Cresnell, 1340 , Evely Mullin Robinstone, Part one
	Oxford, Chrondon Proce, p. 21-34.
VENUE TP	City Mosai, palace of prince (ibu AL-Amata)
	Al-Amid, Taher Muzaffar, 1986. Flanning of Aval- and Islamic
	Cities Bandad p. 590-398
Walt 10	City Moult (Rouse)
	Rajah, Mohammad, 1909. The Islamic of Arabic arcintecture in
	Aug. Bachelat, hog. pt 190-110.
Wiek II	City Wasit (mosques)
	K. A. C. Crussell, 1940, Early Mullin Architectury, Part one
	Oxford Chrysdian Asses p 80, 96
Work 11	City Warit, (palaxes),
	Thisopii, A. (2005). Dictionary of people opiolamic architecture.

University of Quilsianh



#### EARLY AND UMAYYAD ARCHITECTURE IN IRAQ

Lecturer Rajwan al-Mayali University of Al-Quiiaiyah Emoti: <u>njwaralmayali@ganril.com</u> Mob. 1964 73195 70262 Office hours. Menday 11 -12 and Tuesday 10-11 and Wednesday 9-10 or by appointment. Koom and date: to be defined



#### Course description and objectives.

Islamic architecture in the AL-Rashidi and Umayyad, period centeins many materials of the architectogical remains left by the Islamic state, which begins from the period of the prophet. Mahammad in the year 1 A.H. and the AL-Rashidi caliphs and then the Umayyad period and to the her fall in the year 132 A.H. where we study in this article all types of architectural dust emerged early such as mosques, Schools, Pelaces, Caravanserai, Costles. In this class, we are studying the effect of pre – islamic architecture, such as. Sesamian architecture on the architecture of freq at that time. The architecture of the first century A.H in Imay has become the basis for the development of Islamic architecture in Imay and Pensia in later times, in the first Alabasid and the second and the Mengal em until the outermon em.

# Description of the course

Methods



#### EARLY AND UMAYYAD ARCHITECTURE IN IRAQ

Lecturer Rajwan al-Mayeli University of Al-Quilaiyah Emoti: <u>njwannimnyali@guntil.com</u> Mob. 1964 75175 WER2 Office hours. Menday 11 -12 and Tuesday 10-11 and Wednesday 9-16 or by appointment. Korm and dote: to be defined

## **About the professor**



#### Course description and objectives.

Islamic architecture in the AL-Bashidi and Umayyad, period centeins many materials of the architectogical remains left by the Islamic state, which begins from the period of the prophet. Mahammad in the year 1 A.H. and the AL-Bashidi caliphs and then the Umayyad period and to the her fall in the year 132 A.H. where we study in this article all types of architectural dust emerged early such as mosques, Schools, Pelaces, Caravanserai, Costles. In this class, we are studying the effect of pre – islamic architecture, such as. Seaamion architecture on the architecture of freq at that time. The architecture of the first century A.H in Imag has become the basis for the development of Islamic architecture in Imag and Persia in later times, in the first Abbasid and the second and the Mougel em until the outeman em.

#### Methods

In order to obtain optimal results in incremaing the student/knowledge of early followie and Unasyyad architecture, this study depends on the student's vision of samples of Islamic buildings in that period. This requires a trips and field visits to archeological sites.

#### Required Readings and materials

The readings are listed in the syllabus as required materials. Note the class will have Fower Point presentation, some of which are not covered by the reading and use the new technic, like YouTube, education movies and education waiting to maxim and archeological sites. Therefore, it is to students' advantage not to miss the class sessions since they will appear on the midlenn and finals.

#### Students are required to read the following book before attending the class:

Thisarri, A. (2005). Distingues of pagels of islands architecture. Baghdach Alrahar: Aljachaol. Sanach, Kanad al-Din, 1985, Early Islands: Architecture , Baghdad. Bajish, Nobaurunad. 1969. The Islands: of Architecture in Iraq. Esglitical. Iraq. K. A. C. Casawell, 1940., Early Machae Architecture, Part you, Oxford, Character Press.

#### Grade

The gracle for the Manascripts and Islamic paintings material will be divided as follow:

The first esam	Architectural elements and the Architecture city of Bears and Sufe .	10%
The second exam	Building the city of Morul and Wasit .	10%
The Preil-exem	Fee all curriculum	:50%
Paper and Presentation		10%
Adrendance and class participation		10%
Quizzas.		105

The grade scale will be as follows:

90-95	
30-29	
20-29	
63-69	
63-64	
	30-29 70-79 65-69

#### Attendance

There are times classes per week (Montlay, Tuenday, Wednesday) at a rate of many minutes. The course is based on a set of requirements, including lectures, course, duly preparation and discussions, automatures and research in addition to what has been mentioned, surfaces ment take into account other things that affect the assessment of the level of the student, including the absence of necession inside the discussion inside the discussion with the mobile ghore, so it mentions alter the research for a site of mean precession with the mobile ghore, so it mentions alter the course of the level.

## **Method of teaching**

In order to obtain optimal results in increasing the students' loss wedge of early Islamic and Unasyyad architecture, this study depends on the student's vision of samples of Islamic buildings in that period. This requires a trips and field visits to archeological sites.

#### Required Readings and custerials

The readings are listed in the syllabus as required materials. Note the class will have Fower Point presentation, some of which are not covered by the reading and use the new technic, like YouTube, education movies and education waiting to maxim and archeological sites. Therefore, it is to students' advantage not to miss the class sessions since they will appear on the midtern and finds.

Students are required to read the following book before attending the class:

Thiwari, A. (2008). Obstances of people of islands architecture. Baghduck Alminer Aljachad. Sanch, Kanadad-Din, 1985, Early Islands. Architecture , Baghdud. Bajab, Mohammad. 1969. The Islands of Architecture in Iraq. Baghdud. Iraq. K. A. C. Creswell, 1940., Early Mechae Architecture, Part one , Oxford, Chaeadon Press.

#### Grade

The gracle for the Manascripts and Islamic paintings material will be divided as follow:

The first exam	Architectural elements and the Architecture city of Bases and Sufa .	10%
The second exam	Building the city of Morul and Wasit .	10%
The Final-esom	For all curriculum	50%
Paper and Presentation		10%
Adrendance and class participation		10%
Quizzas.		105

The grade scale will be as follows:

Excellence	90-95	
Verygood	30-29	
Good	20.29	
Average	63-69	
Acceptable	63-64	

#### Attendance

There are times classes per week (Monday , Tuesday , Wednessky) at a rate of mnery minutes. The course is based on a set of requirements, including lectures, essens, daily preparation and discussions, attendance and research for addition to what has been mentioned, stations must take into account other things that affect the assessment of the level of the stateout, including the absence of noise inside the classroom iteracily speech or precompation with the mobile phone, so it must be allocit to not affect the course of the leven.

# Required readings and materials

Grade

In order to obtain optimal results in increasing the students' knowledge of early Islamic and Unatygod architecture, this study depends on the student's vision of samples of Islamic buildings in that period. This requires a tripe and field visits to archeological sites.

#### **Required Readings and materials**

The readings are listed in the syllabus as required materials. Note the class will have Fower Point presentation, some of which are not covered by the reading and use the new technic, like YouTube, education movies and education waiting to maxim and archeological sites. Therefore, it is to students' advantage not to miss the class sessions since they will appear on the midtern and finds.

Students are required to read the following book before attending the class:

Thiorni, A. (2005). Októwarz of posyła of blawie architecture. Baghdack Alexius: Algahasil. Sanak, Kanal al-Din, 1985, *Eurip Viswie: Architecture*, Baghdal. Bajdo, Mohammad, 1969. The information functional conditional to Iraq. Baghdad. Iraq. K. A. C. Cassevell, 1949, *Eurip Machan Antonication*, Fast one, Costind, Characher Press.

#### Grade

The grade for the Manascripts and Islamic paintings material will be divided as follow:

The first esam	Architectural elements and the Architecture city of Bases and Sufa .	10%
The second exam	Building the city of Month and Wasin .	10%
The Fireil-exers	For all curriculum	30%
Paper and Presentation		10%
Adrendance and class participation		10%
Quizzas		105

The grade scale will be as follows:

Excellence	90-95	
Verygood	393-329	
Goad	33-39	
Average	63-69	
Acceptable	63-64	

#### Attendance

There are times classes per week (Montlay, Tuenday, Wednesday) at a rate of many minutes. The course is based on a set of requirements, including lectures, course, duly preparation and discussions, automatures and research in addition to what has been mentioned, surfaces ment take into account other things that affect the excessment of the level of the student, including the absence of necession inside the classes inside the excession processponent with the mobile ghore, so it mentions silent to not affect the course of the leven.

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#### Students are required to read the following book before attending the class:

Thiward, A. (2005). Dictionary of people of islands architecture. Baghdach Almihur Alfachard. Sanch, Kanad al-Din, 1985, Early belowie: Architecture, Baghdad. Bajab, Mohammud. 1989. The Islands of Arabic architecture in Imp. Baghdad. Imp. K. A. C. Casawell, 1940., Early Machine Architecture, Part one , Oxford, Characher Press.

#### Grade

The gracle for the Manuscripts and Islamic paintings material will be divided as follow:

The first exam	Architectural elements and the Architecture city of Bosta and Sufa .	10%
The second exam	Building the city of Month and Wasit .	10%
The Final-esom	For all curriculum	:50%
Paper and Presentation		10%
Attendance and class participation		10%
Quizzas.		105

The grade scale will be as follows:

Excellence	90-95	
Verygood	393-329	
Good	33-39	
Average	63-69	
Acceptable	63-64	
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#### Attendance

There are times classes per week (Menday, Tuenday, Wednessky) at a rate of mnery minutes. The course is based on a set of requirements, including lectures, course, daily preparation and discussions, attendance and research in addition to what has been mentioned, surfaces must take into account other things that affect the assessment of the level of the student, including the absence of action inside the classroom through speech or precompation with the mobile phone, so it must be attent to not affect the course of the leven.

## Attendance

University of Galistsuh



Week	Subject
Wezk I	Introduction Types of buildings and elements of Architecture. Rajab, Mohammad, 1989. <i>The Dilawic of Acabic orchitecture in Integ</i> Baghdol, Integ. p. 12–18
Week 2	City Barra (moreques). Hedia , Janeau , 2011 , Planning the city of Barra in the first contrary A.H., p. 22-29
Week 3	City Bases, palace of prince (Dar AL-Amara). Hadia , Jawan , 2011 , Planning the city of flaura in the first controp A.H., p. 34-42
Weak 4	City Busen (Houses) Al-Amerid, Taher Muzaffar, 1986, Planning of Arab and Diamir Criter, Daghebel p. 348
Week 5	City Kulti (mosques) Poster , Ander , (1936) . <i>Distionary of Viewie architecture</i> , London , p. 154-167
Week 6	City Kuft, piloce of prince (Dat AL-Aman) Keddom, AL Jansapy (1987), Physicag the city of Kyle in the first control A.I. Baghdad, p. 40-57.
Wesk 7	City Kufe, (Houses) Rajab, Mohammad, 1989. <i>The Intervier of Anabia ancharceiwe in</i> Inag. Hagitalal, Inag. p. 75-69. First Exam.
Week 8	City Mosal, (mosques), R. A. C. Creswell, 1946 , Early Meetin Architecture, Part one , Oxford, Chrondos Press, p. 21-34.
Week 9	City Mosul, solace of prince (Dar AL-Antara) Al-Amrid, Tabar Mazaffir, 1986, Planning of Arab and Islamic Citys, Baghdad, p. 393-398.
Week 10	City Massil, (Houses) Bajab, Mohammad, 1989. The Islamic of Arabic encluteration in Iraq. Baghind, Iraq. p. 100–110.
Werk 11	City Wasit (mosques) K. A. C. Cresswell, 1940, <i>Lindy Maxim Architecture</i> , Part one , Oxford, Clarendos Press, p.30-95.
Week 12	City Wash, (palaces). Thionai, A. (2005). Distinguy: of people of islands evolvectory.

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# Calendar of lessons and subjects

COURSE TITLE	Name - 4	line and mainting			Week	Subject	
	Insquered Base	lings and marketiab			_	bibligraphy	
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University of						bibliography	
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COURSE TITLE	Required Readings and materials		Work	Subject	
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COURSE TITLE	Reasonal Readings and excitately		Venia	Subject
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Course description and objective	Reference is			
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## WALADU PRESENTATION

**Objectives and expected outcomes** 



WALADU Cascade Training,

**Bertinoro 11th-15th December 2018** 



### **SHAPING WALADU COOPERATION**

The WALADU project is rooted in a long tradition of research, cooperation and training in several countries of the Near East including Syria, Turkey and Iraq.





### **Fieldworks**





### **SHAPING WALADU COOPERATION**

### **Students training**



### **International Projects**



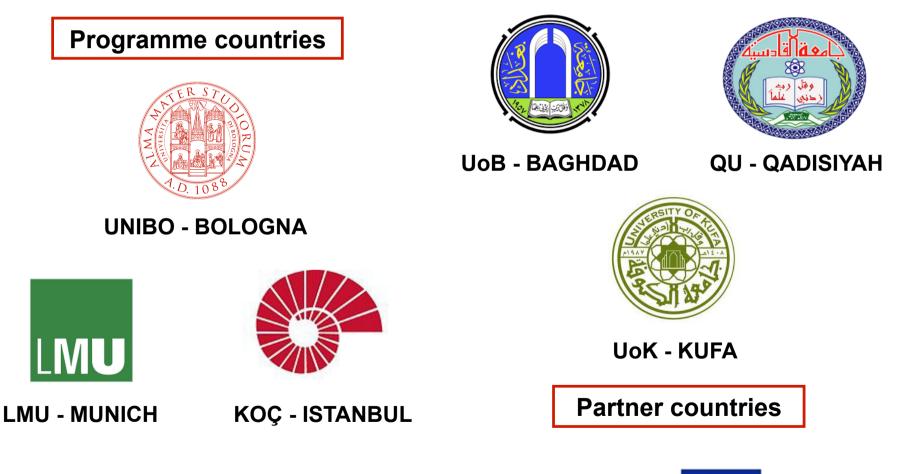
# EblaChora.

ARCHAIA





### THE WALADU TEAM





### THE WALADU TEAM

**Programme countries** have been carefully selected in order to provide the **highest educational standards of excellence** in research and teaching. UNIBO, LMU and Koç offer a wide spectrum of of disciplines and are **leading universities** in the fields of archaeology and ancient history.

All of them have a **broad network of international connections**, including thousands of exchange students, visiting scholars and other staff members.

**Partner coutries** include some of the best Iraqi universities all deeply involved in the field of archaeology and ancient history. Their **awareness of the issue an the necessity to improve** the Iraqi university system made them the **perfect candidates** to participate to the WALADU project.



### **PROJECT OBJECTIVES**

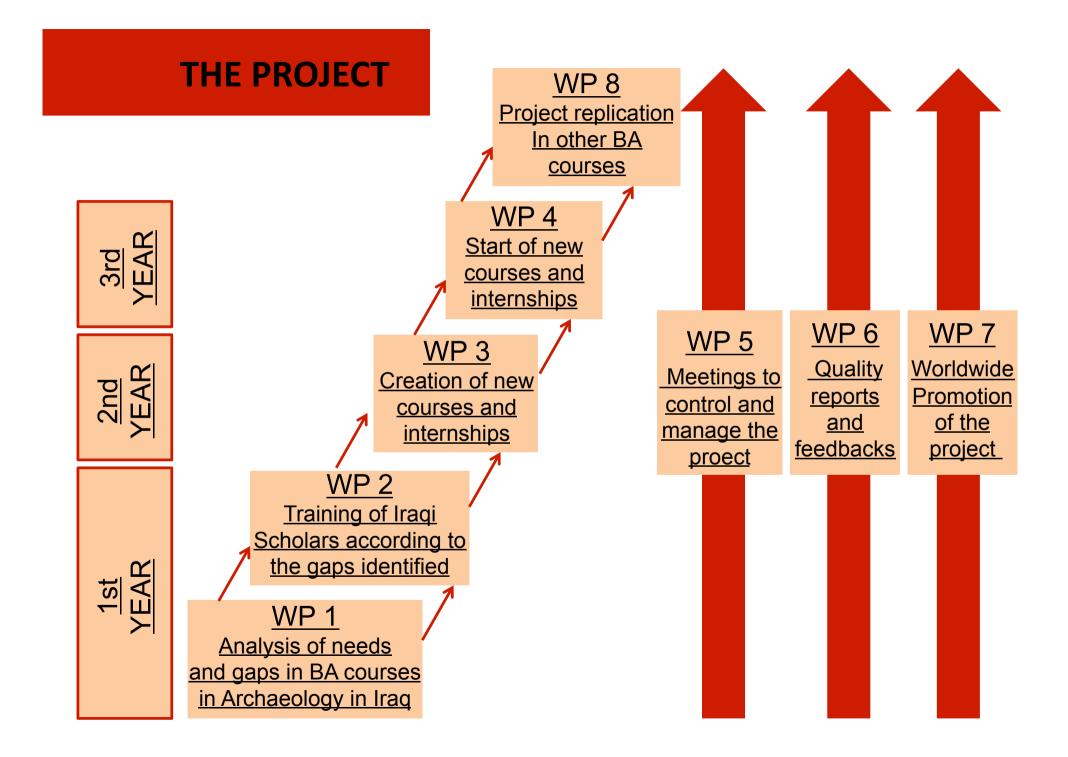
## **WALADU Wider Objectives**

<u>To improve Higher</u> <u>Education</u> <u>in Archaeology</u> <u>in Iraq</u> <u>To increase the</u> <u>students</u> <u>opportunities in the</u> <u>Iraqi labour market</u>

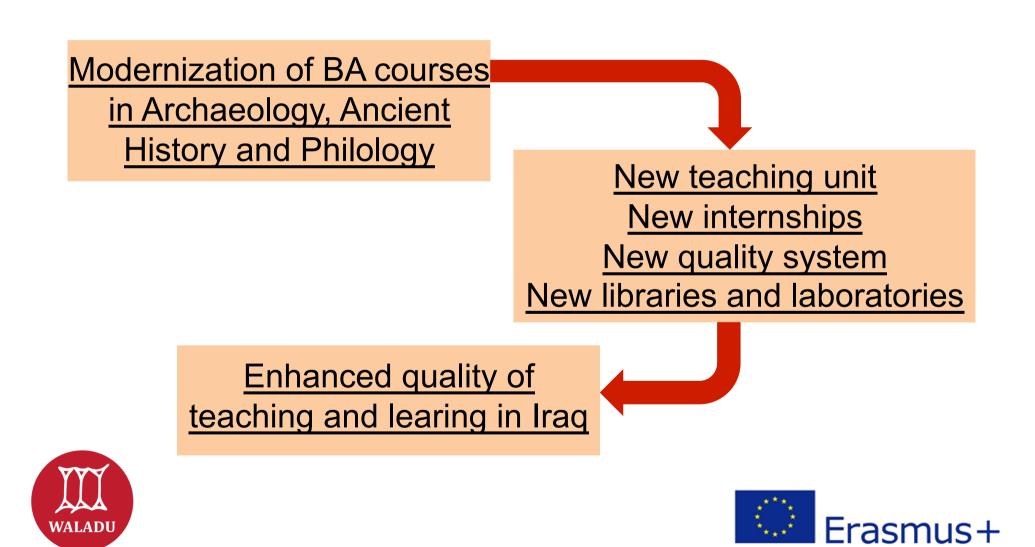
<u>To enhance EU-Iraq</u> <u>academic</u> <u>cooperation</u>







### **SPECIFIC PROJECT MILESTONES**



### **SPECIFIC PROJECT OBJECTIVES**

Reinforced capacity to design courses, teach, and produce innovative knowledge by local teaching staff Selection and 2 weeks training at LMU of 12 Iraqi senior teachers

Selection and 2 months training at LMU, Koç and UNIBO of 12 Iraqi junior researchers

Selection and training of 30 Iraqi administrative staff members

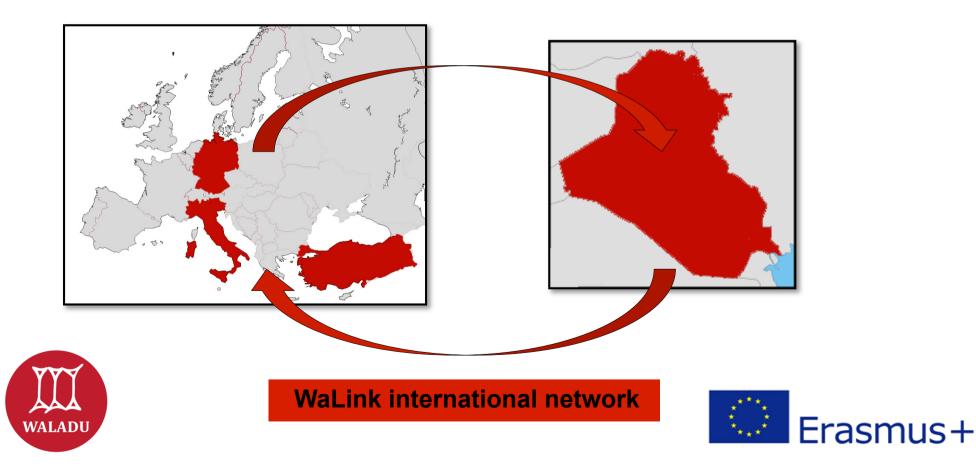




## **EXPECTED OUTCOMES**

**International connections** 

<u>To foster international collaborations between EU and Iraq</u> <u>framing them in an internationally regulated scheme</u>



### **AN OVERVIEW**

### Improvements in the university system



New teaching units

### **New internships**



### **New teaching facilities**

