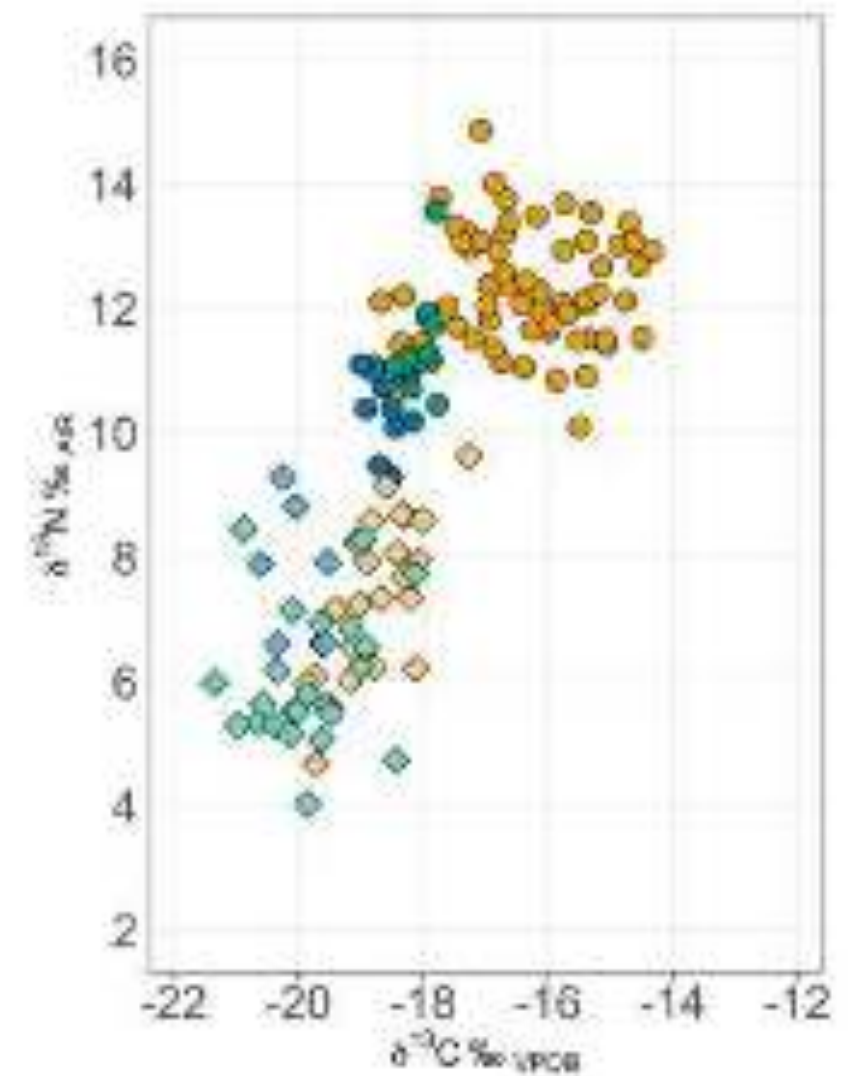
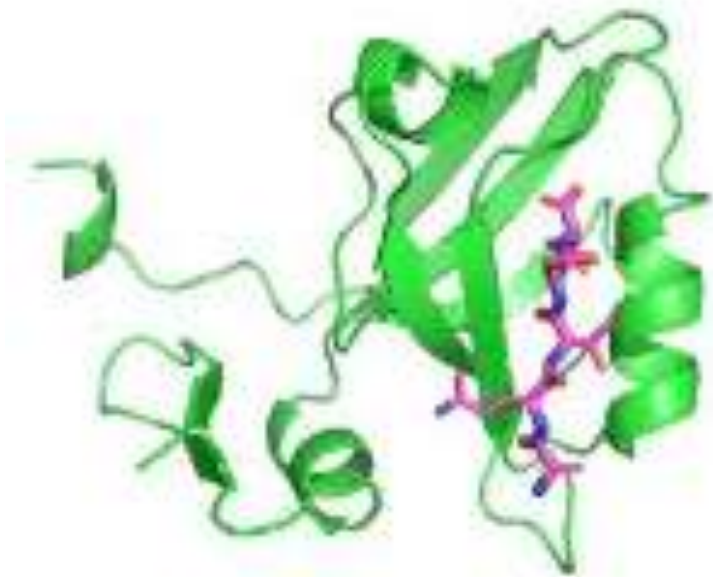


New research in the USA and Europe in the field of reconstruction of ancient history: organization of science, new methods and approaches

Prof. Cheryl Makarewicz
Kiel University





BA Brandeis University

Anthropology and Near Eastern Studies

Waltham, Massachusetts
(15 km east of Boston)

Founded 1948

4000 Bachelors

500 Masters

500 PhDs





Semiotics

сѐмиотика

Ways of giving meaning



Analysis of Ancient Texts

древние тексты

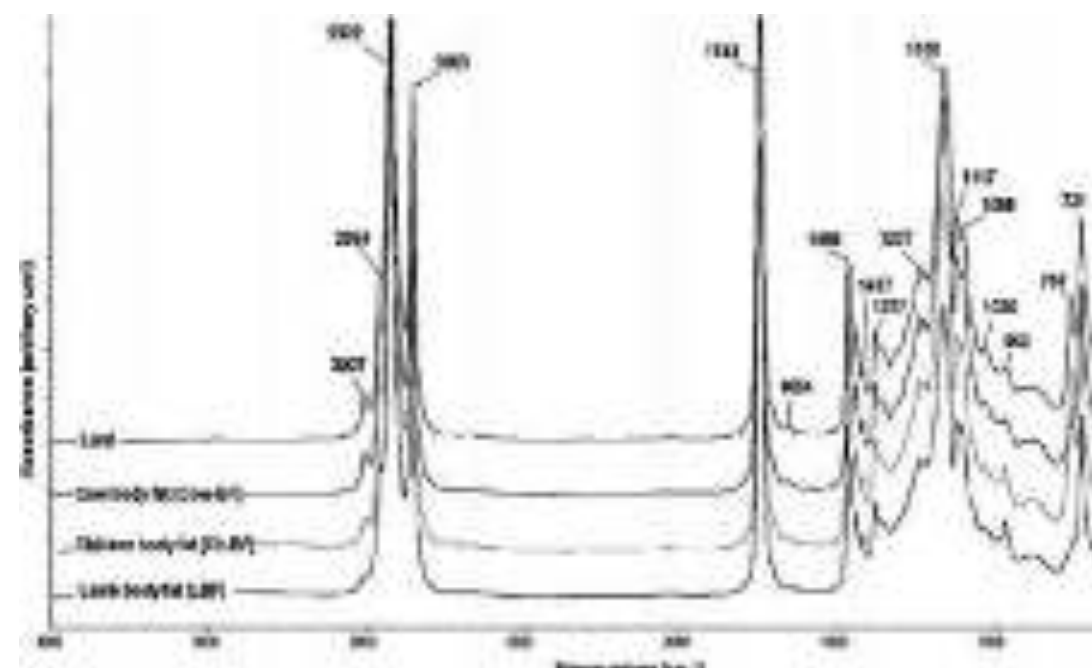
Akkadian



Archaeological Sciences

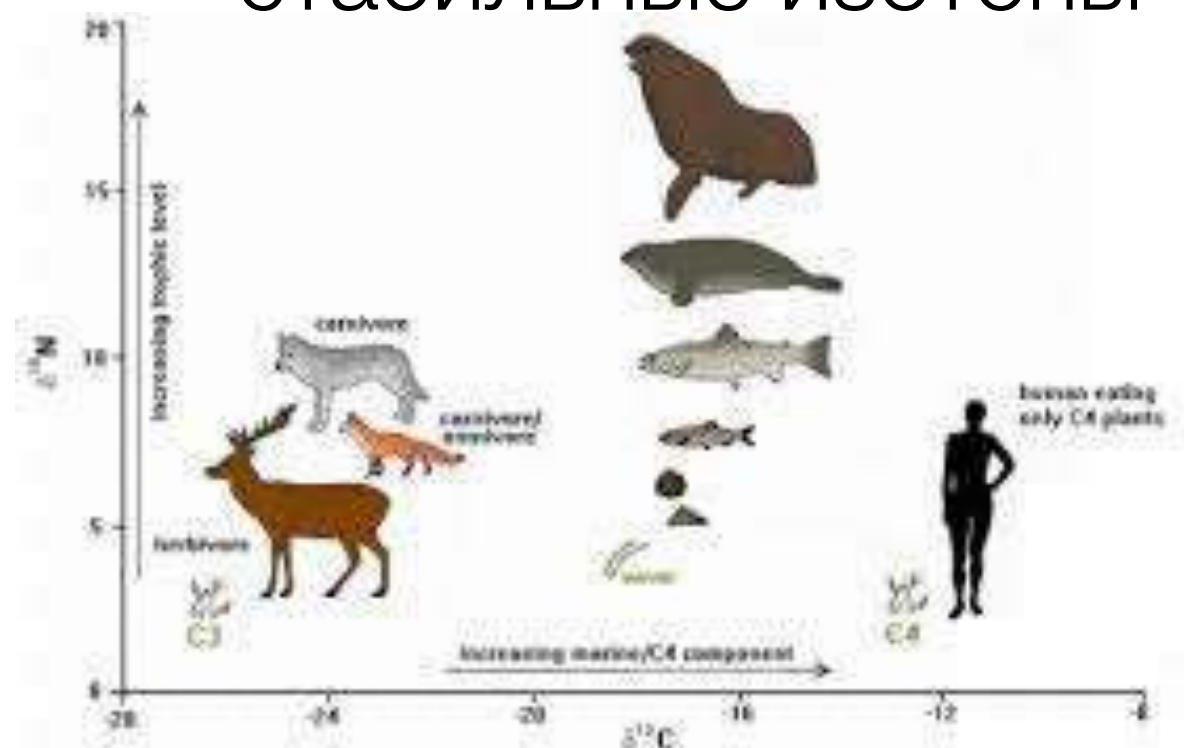
хроматография

Botany



стабильные изотопы

Zoo archaeology





PhD Harvard University Anthropology





Harvard

Founded 1636

6500 Bachelors



Arts and Sciences
Medical School
Law School
Business School
Design School

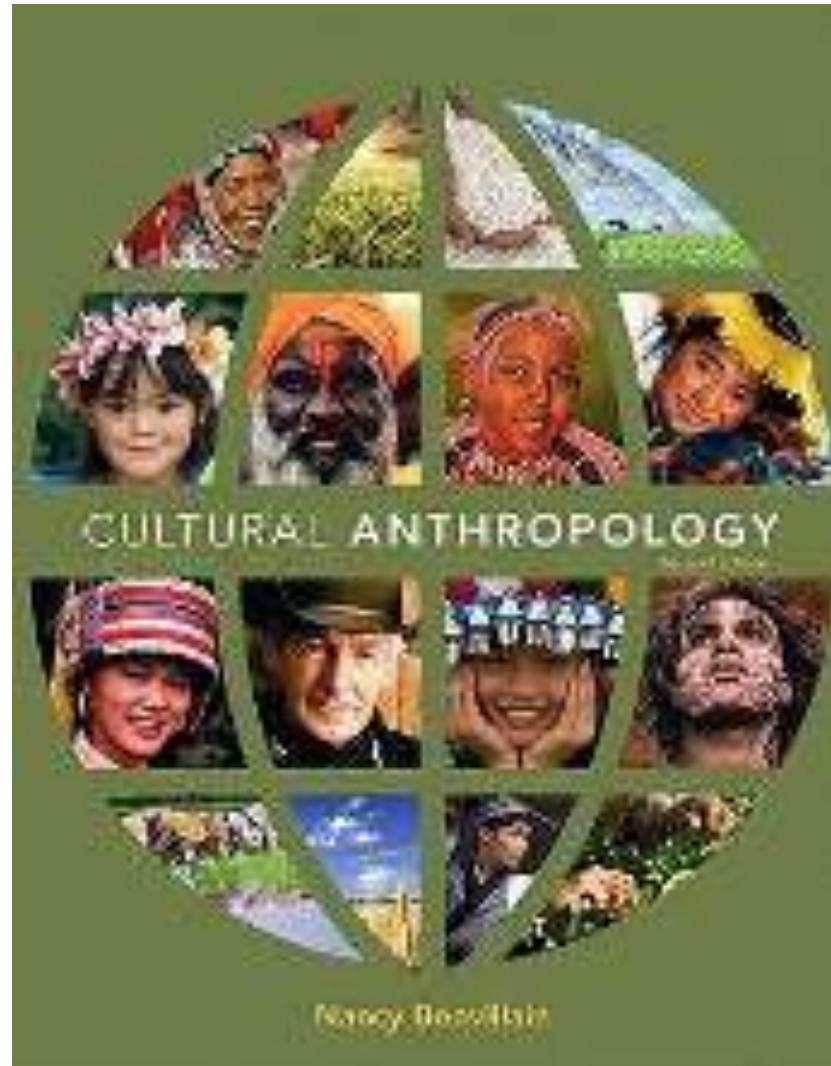




Department of Anthropology



Archaeology



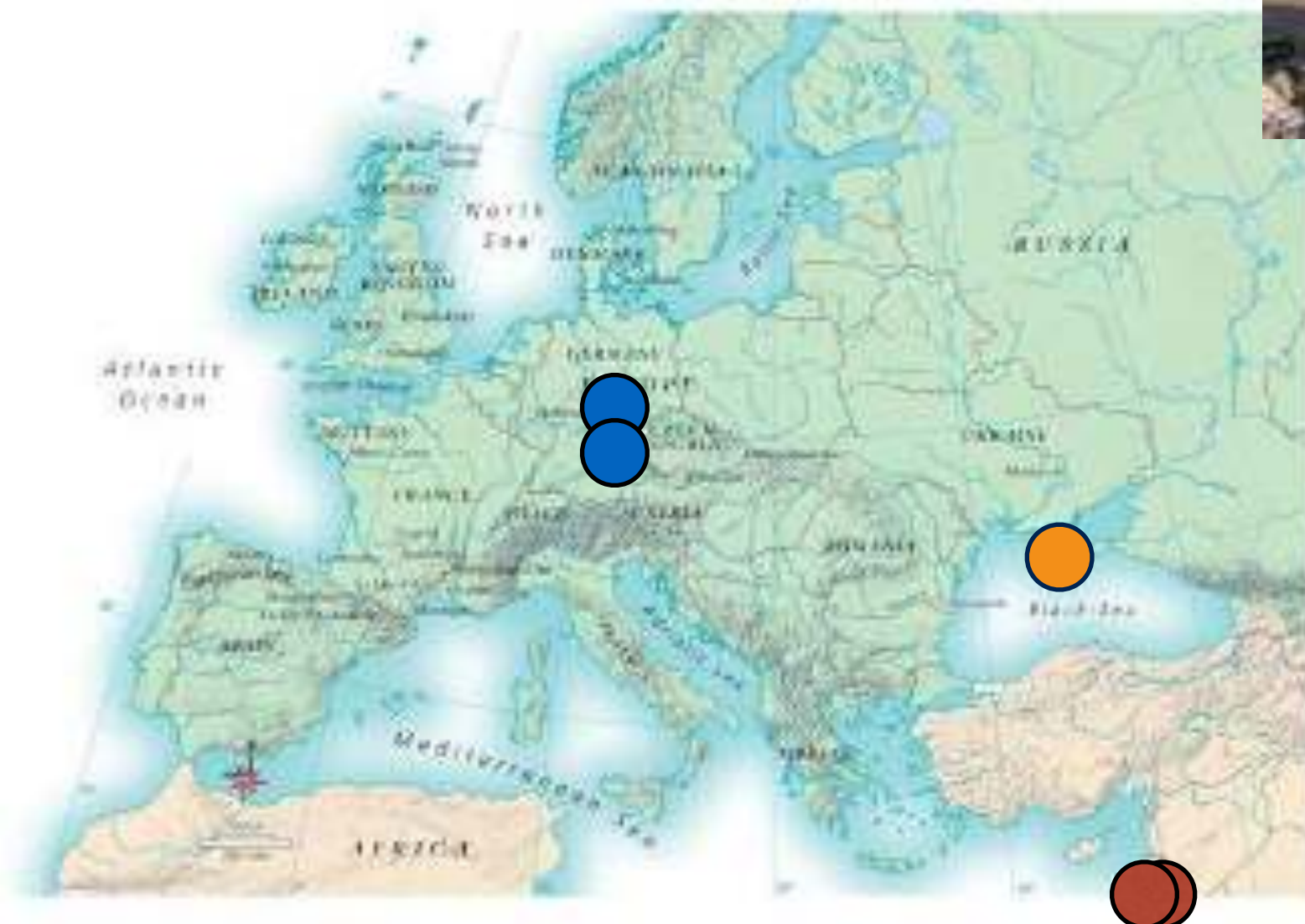
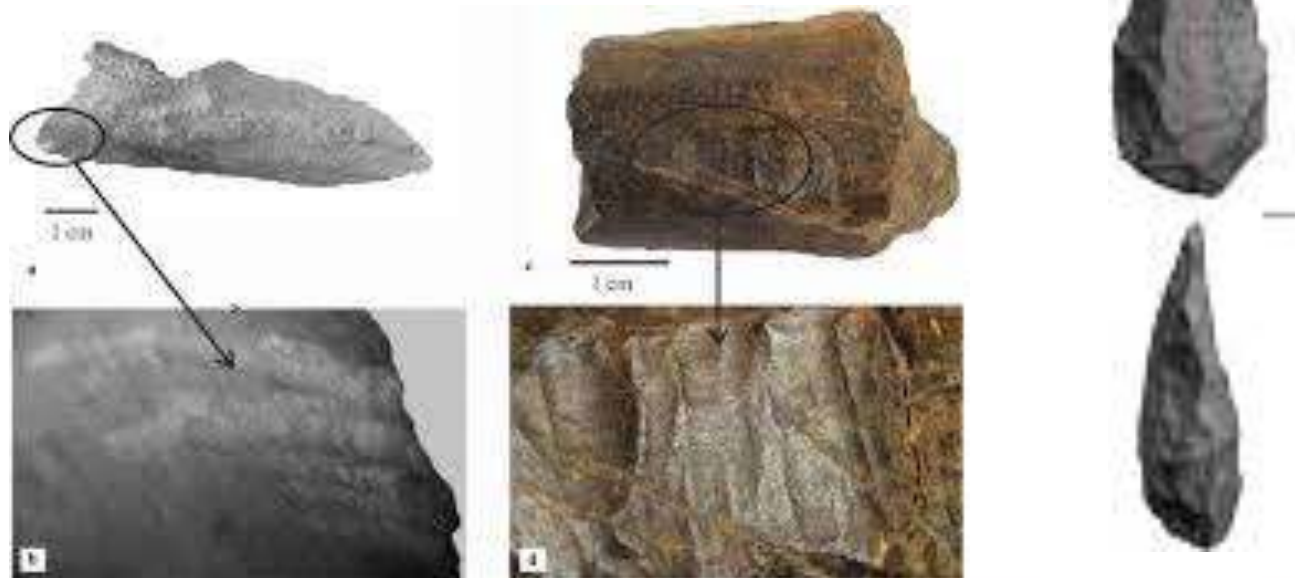
Cultural
Anthropology



Biological
Anthropology



Paleolithic



Revadim
HaYonim

Chokurcha

Hohle Fels
Geisenklosterle Cave



Pre-Pottery Neolithic

Dhra'

Pre-Pottery Neolithic A

'granary'
зернохранилище



Kfar HaHoresh

Pre-Pottery Neolithic B

mortuary site
Место захоронения



Figure 6: The plastered skull (Homo I-KH) from Kfar HaHoresh, Israel (Collection, peris.comunicacion 2017).





Mongolia





Mongolia

Can we use isotopes to identify feeding of animals?

Можем ли мы использовать изотопы для идентификации кормления животных?



Baga Gazar'in Chuluu

WILD

DOMESTICATE



Capra siberica



Capra hircus



Ovis ammon

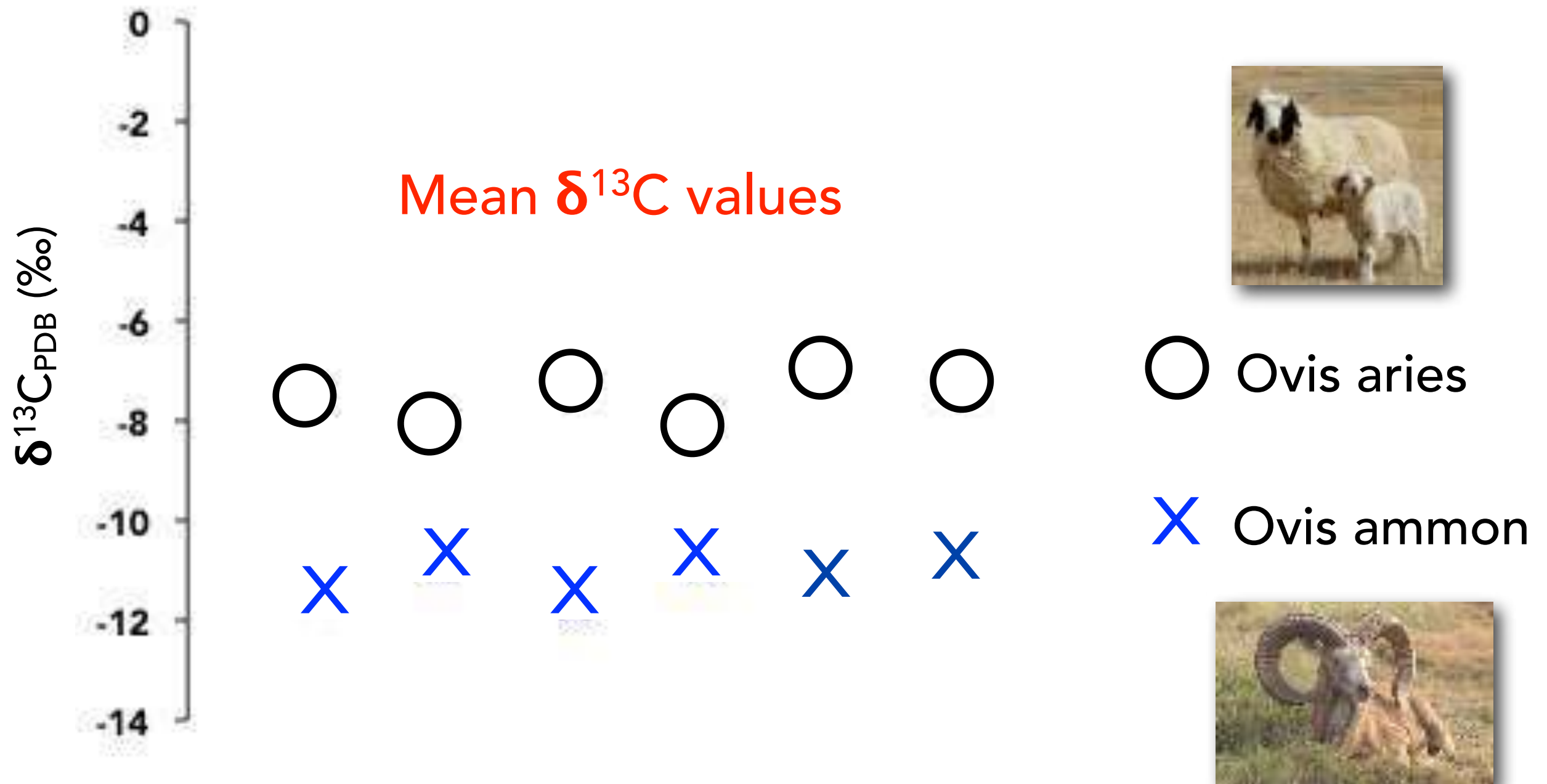


Ovis aries



Domesticated sheep eat summer diets all year

Mean $\delta^{13}\text{C}$ values





Pre-Pottery Neolithic Animal Domestication

Carbon and nitrogen isotopes





Pre-Pottery Neolithic Animal Domestication

Isotopes

**People Fed Their Animals
8,500 cal BC**





LPPNB el-Hemmeh (7200 cal BC)





LPPNB el-Hemmeh

- Systematic recovery of subsistence remains
- Change in the 'built environment' with increasing population
- How did sheep/goat husbandry change?

Систематическое
восстановление остатков
средств к существованию

Изменения в «искусственной
среде» с ростом населения



Как изменилось
разведение овец / коз?



LPPNB Animal Husbandry (7200 - 6700 BC)

Zooarchaeology

Первые одомашненные
ОВЦЫ И КОЗЫ

First domesticated sheep and goat



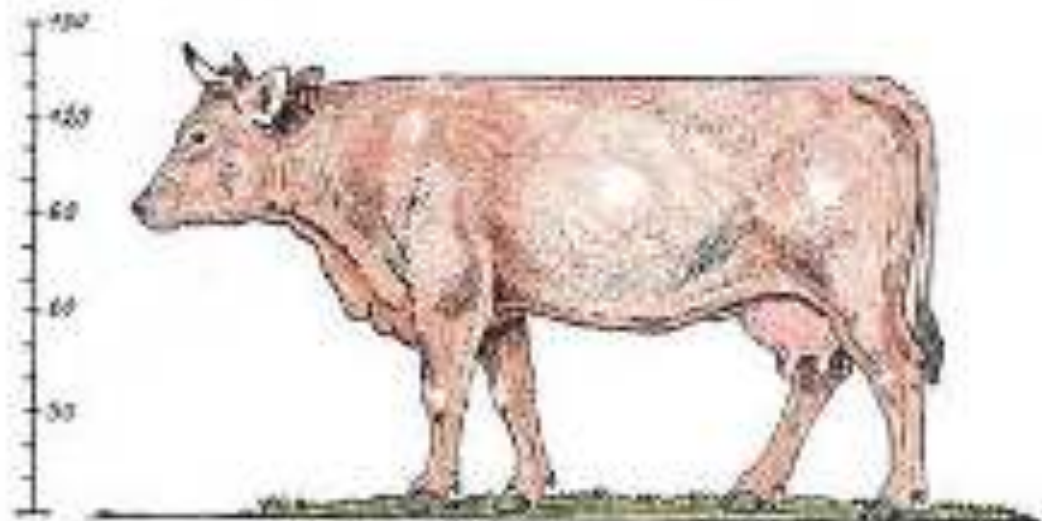
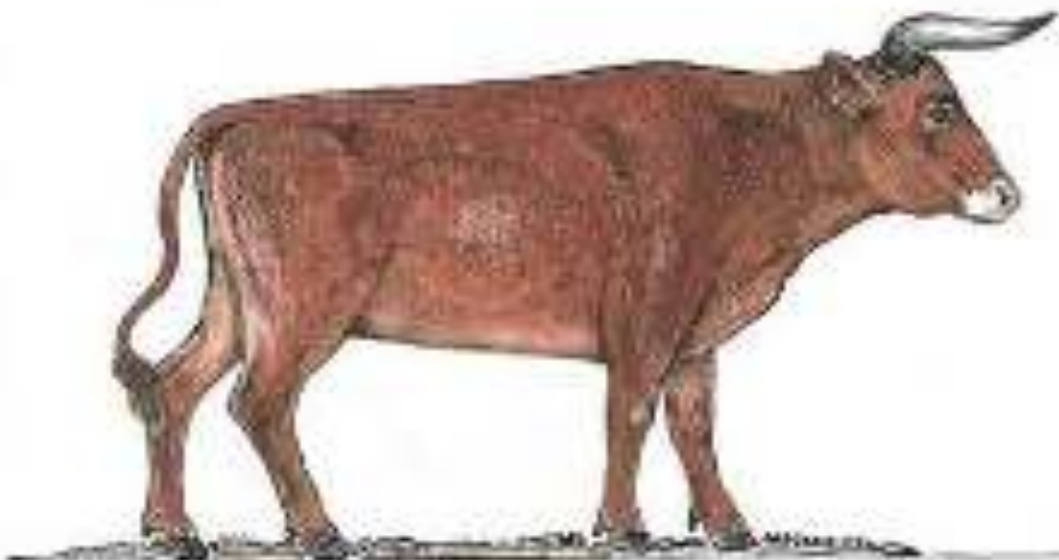
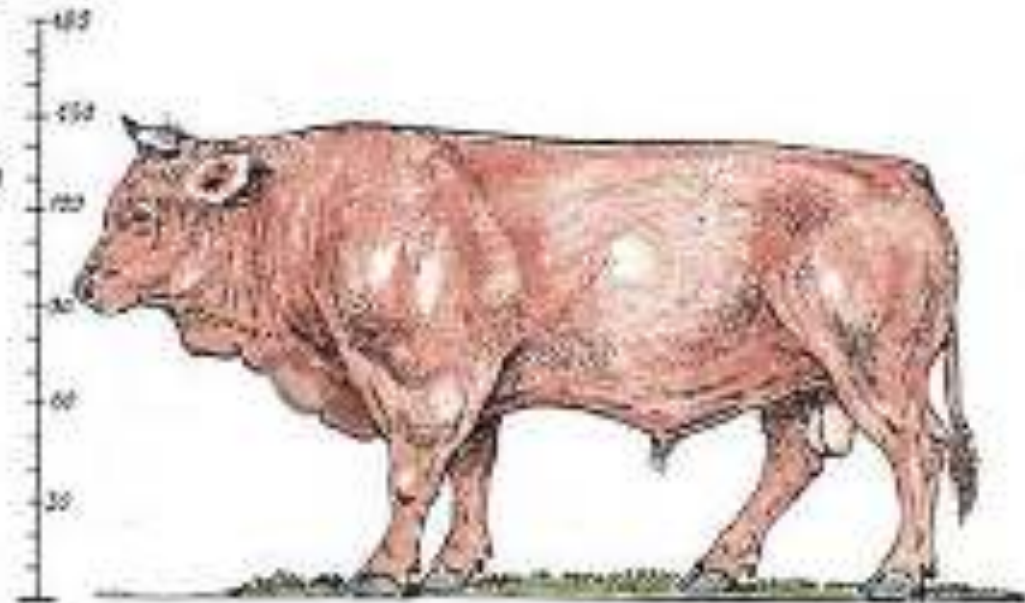
Первые крупные поселения (> 12 га)
First large settlements (> 12 hectare)

Dense settlement
плотное поселение





Cattle Domestication

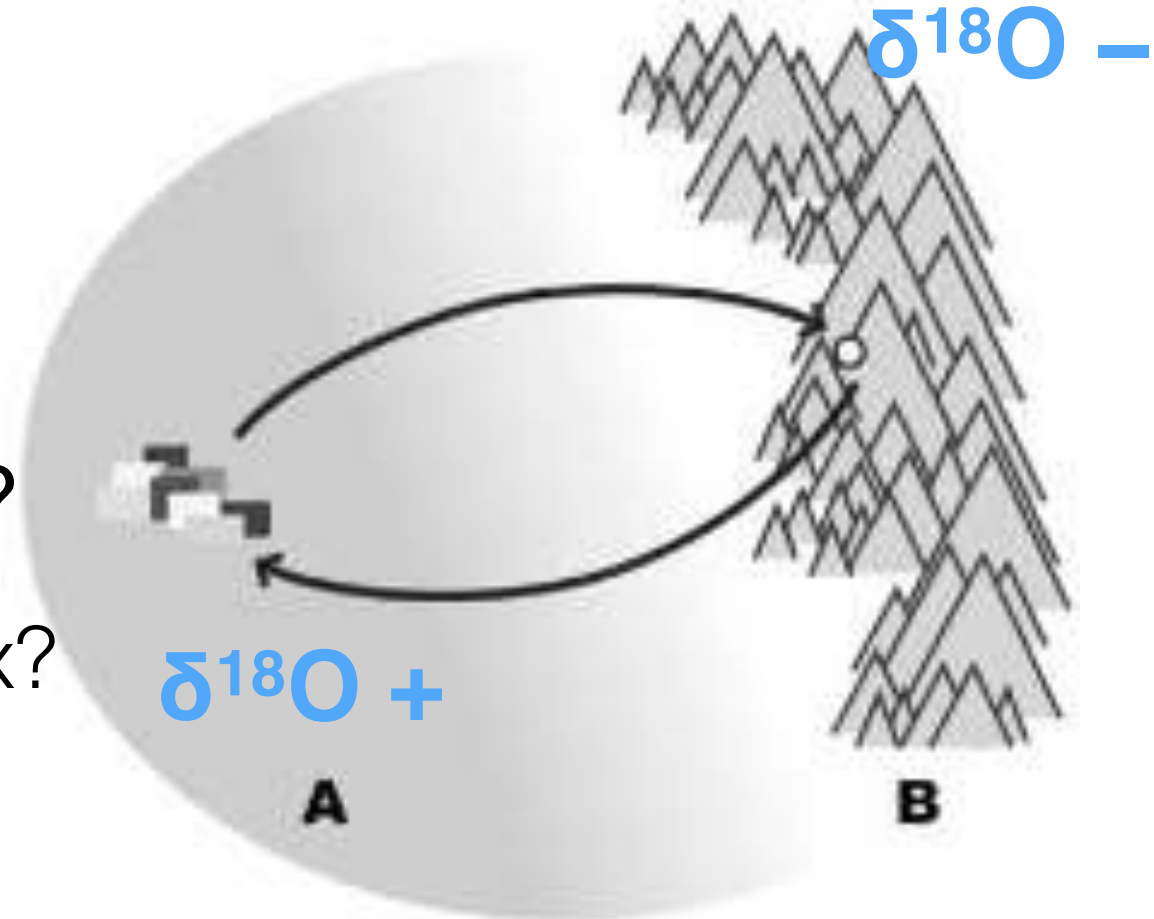




Vertical transhumance

How do we identify animal movement?

Как мы определяем движение животных?



Isotopes

$\delta^{13}\text{C}$ (diet, диета)

$\delta^{18}\text{O}$ (Environment, окружающая среда)



Sheep teeth





Vertical transhumance

7200 BC

New subsistence strategy

New social worlds
(социальный мир)





el-Hemmeh PPNA 10,000 cal BC

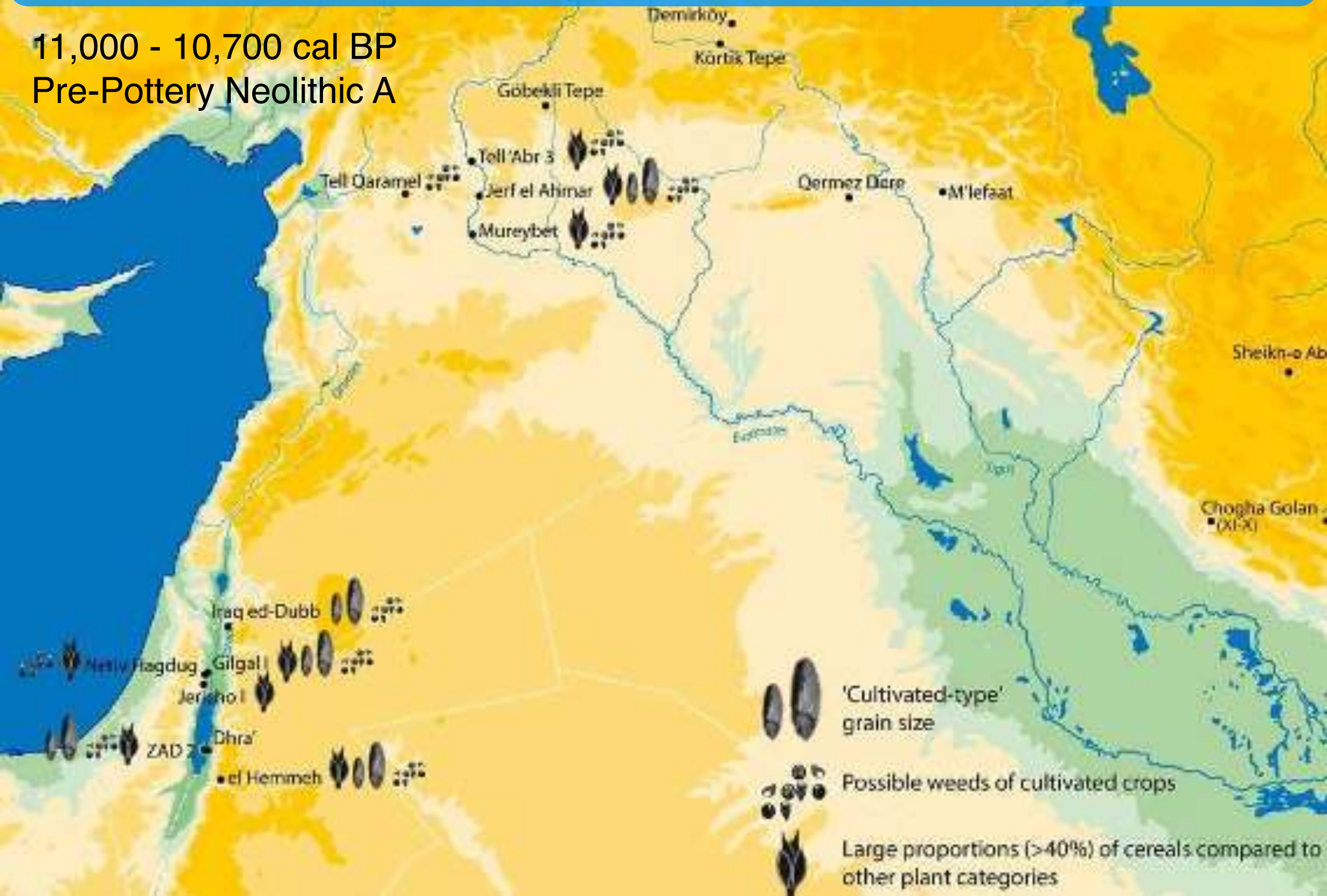


NATIONAL
GEOGRAPHIC



MULTI-REGIONAL AND PROTRACTED CULTIVATION PATHWAYS

11,000 - 10,700 cal BP
Pre-Pottery Neolithic A







First Plant Cultivation



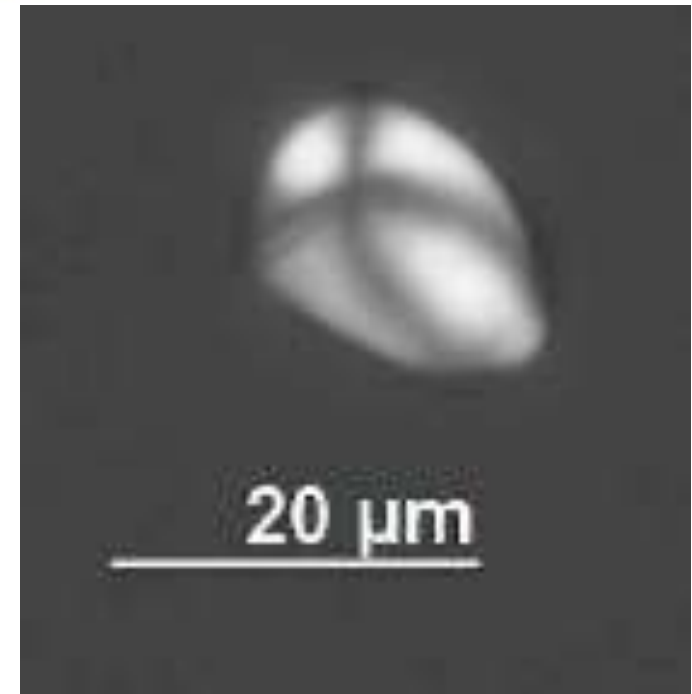
NATIONAL
GEOGRAPHIC

Cultivated barley

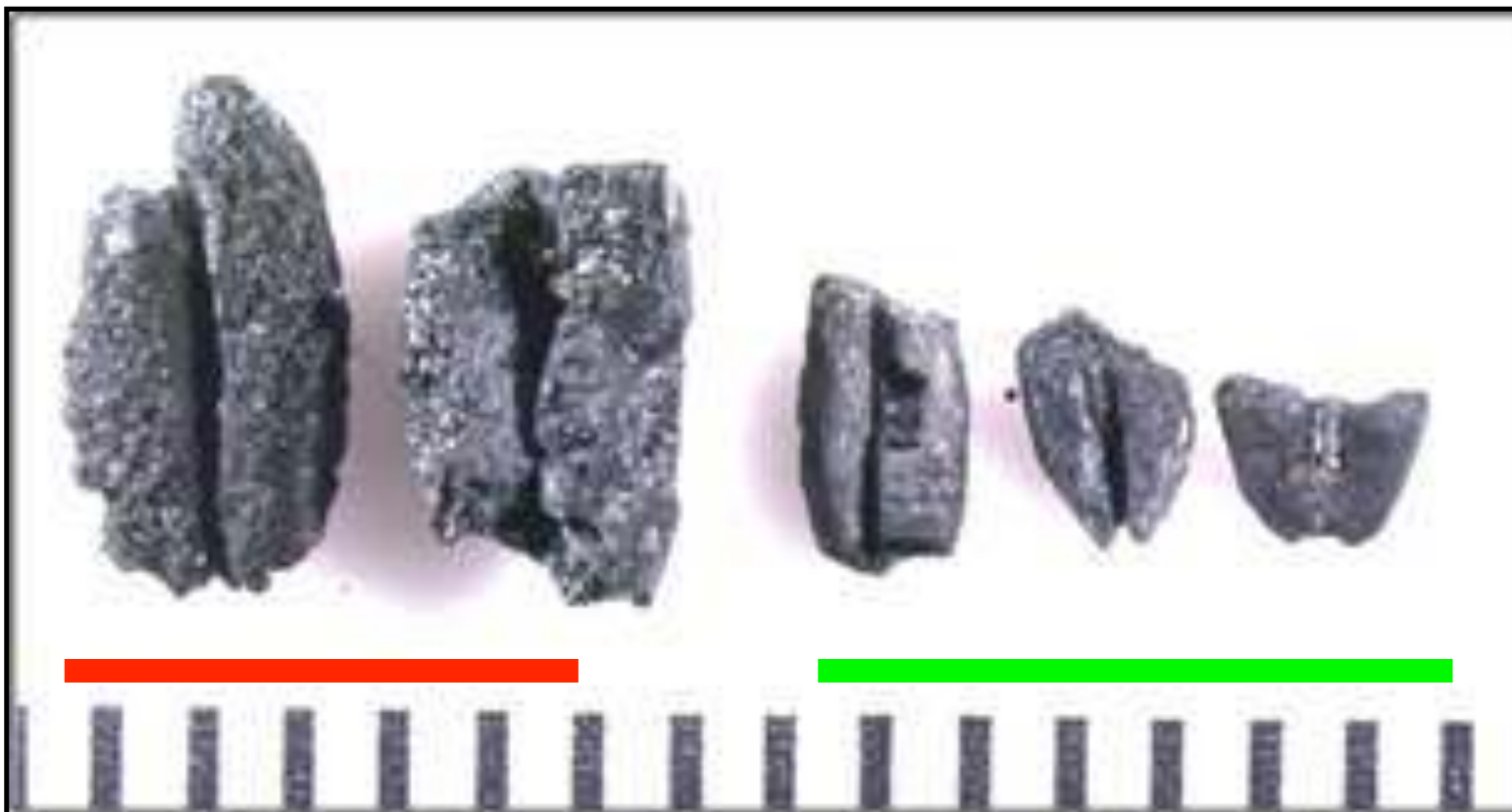
выращенный ячмень

42% wild

38% cultivated



клубни



New burial practices





Mongolia Isotopes





Mongolia Isotopes

Winter pasturing



Winter pasture
+ nitrogen isotopes



Summer pasture
— nitrogen isotopes



Institut für Ur- und Frühgeschichte



Professuren und Bereiche

Professuren

Prähistorische
Archäologie

Historische
Archäologie

Umweltarchäologie
Archäobotanik

Archäozoologie
und
Isotopen-
forschung

Anthropologische
Archäologie

Bereiche

Archäoinformatik

Paläoklima

Neuzeitarchäologie

Phytolithen-
analyse

Sozialarchäologie

Unterwasser-
archäologie

Palynologie

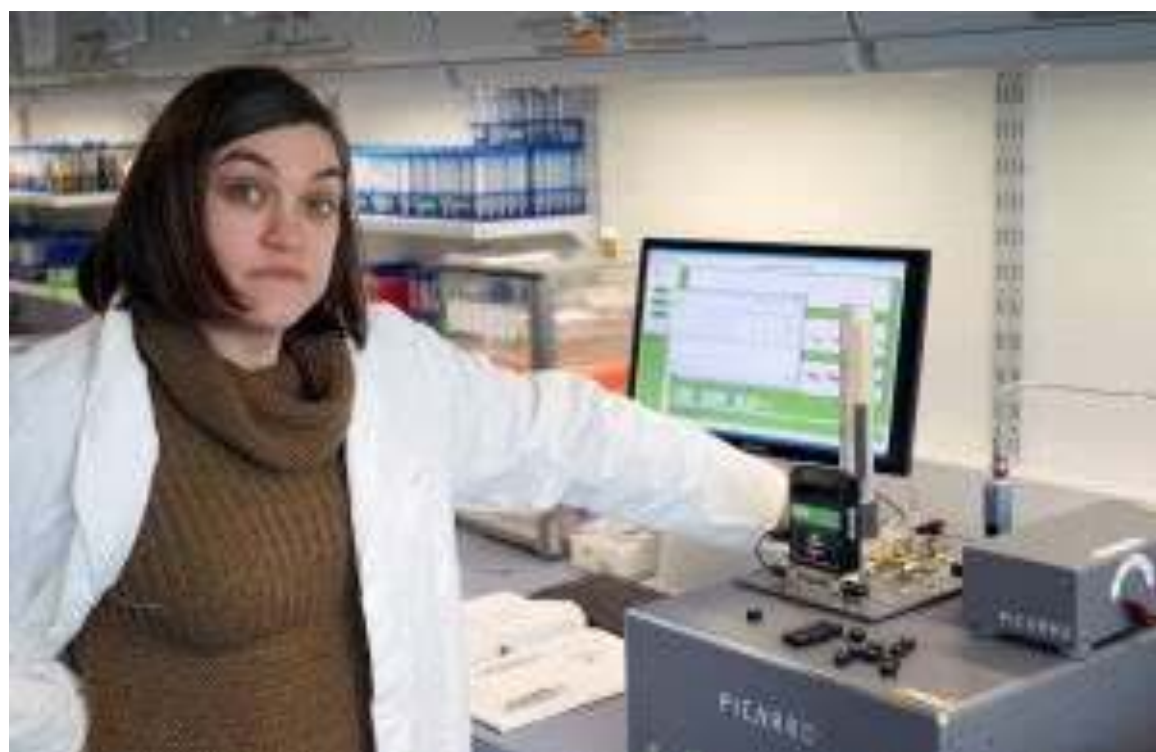
Institut für Ur- und Frühgeschichte





Oxygen
Carbon
Nitrogen
Strontium

Compound-Specific Isotopes







ONCE THE BACKPACKS AND DONKEYS ARE LOADED,
THE TEAM STARTS THE 5-HOUR HIKE TO REACH
THE PLATEAU WHERE THE CAMP WILL BE SET UP.

C | A | U

PPNA Sharara



NATIONAL
GEOGRAPHIC



C | A | U

PPNA Sharara



NATIONAL
GEOGRAPHIC



C | A | U

PPNA Sharara



NATIONAL
GEOGRAPHIC



C | A | U

PPNA Sharara



NATIONAL
GEOGRAPHIC



Possible use of birds

- Food
- Decoration
- Symbolism
- Functional



Falcon Trapping in the badia



Photo: Jerome Poulalier



Why trap falcons?



ASIAPAST



From herds to empire:

Biomolecular and zooarchaeological investigations of
mobile pastoralism in the ancient Eurasian steppe

Cheryl Makarewicz
University of Kiel, Germany

International Collaborations make good science!



International Collaboration



The University of Manchester



האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM



International Collaboration



Yale



International Collaborations make good science!





New Results!



**Horse Milk
Eneolithic**

Novoilinka VI

**Earliest Domesticated Sheep
Afanasievo
(ca 3300 - 2900 cal BC)**





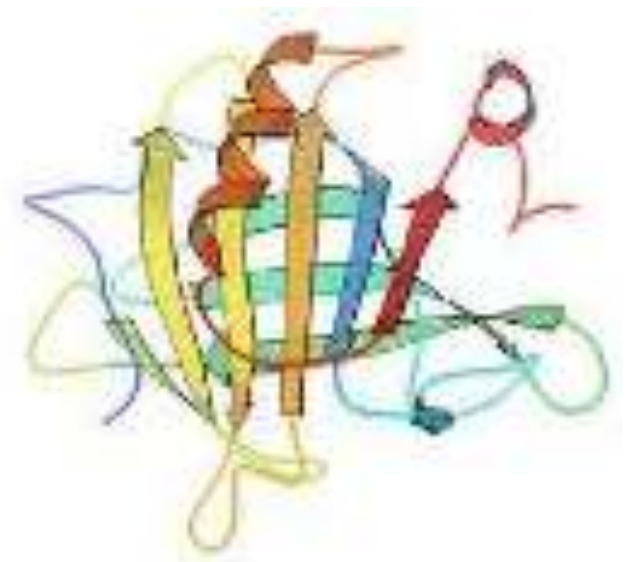
New Results!



**Sheep, Goat, Cattle
Dairy Drinking
Afanasievo**



beta lactoglobulin
alpha casein



International Collaborations make good science!

- Dialogue
- Idea Exchange
- Distribution of resources for the study of the human past



Archaeological Science is only as good as the Excavation

