



# Osteological analysis

Elżbieta Jaskulska

Department of Bioarchaeology,

Faculty of Archaeology

University of Warsaw, Poland



# Laboratory analysis of the cremains

- Most cases will require the economic approach to the analysis of cremains: we have to balance the amount of acquired data with available resources, mainly the time and finances.
  - This problem will be vital in the cases where analysis will be performed on medium to large samples, usually the whole cemeteries (>100 burials)
- The method utilised during workshops is based on the method developed by J. McKinley (1994) and presented in Jaskulska (2020).



# State of preservation — fragmentation

- Often archeologists will count the number of the cremated bone fragments during excavation and cataloguing of the cremains. That's very ineffective method as:
  - Number of the fragments will multiply during even very careful transport and handling of the cremains
  - Numbers alone will not actually describe the amount and state of the bone available for analysis (you can get one rib in tens of fragments or the whole clavicle preserved just in two parts)
- There are several methods of recording the state of preservation



# State of preservation — fragmentation

- The amount of the fragments can easily be recorded as weight of the burial
  - The method is simple and straightforward
  - It will not describe the state of preservation – the fragmentation is not recorded
- Additional methods of describing the fragmentation is required:
  - The number of fragments is not ideal as stated before
  - Some researchers are measuring volume of the fragments
  - Others are using sieves to acquire information of the amount (by weights) of fragments of different sizes



# 1st step

Getting the weight of the whole burial brought for the analysis



## 2nd step

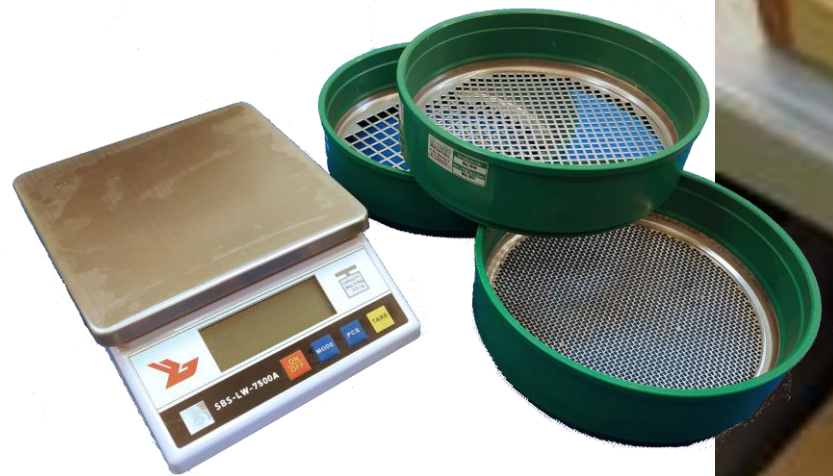
Looking for the „foreign” objects, mainly the artifacts and/or animal remains and removing them from the analysed material (with information about their total weight, which should be deducted from the total sum of the weights)



## 3rd step

Sieving the remaining cremains by the stacked sieves of calibrated apertures: 10 mm, 5 mm and 2 mm.

# Sieving







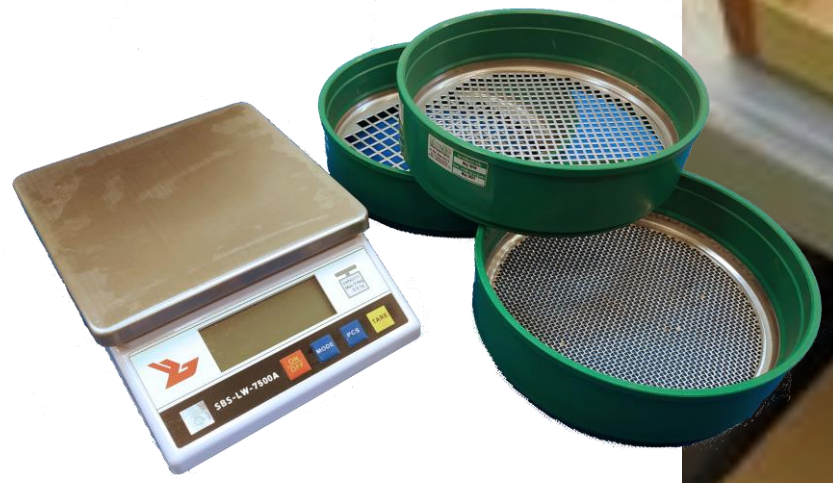
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## 4th step

Recording of the weight of the each fraction.



# Weighting





# 5th step

Morphological analysis of the cremains



# Identification of animal remains

- Anatomical differences
  - Size
  - Shape
  - Type of bone (antlers/horns)
  - Inside structure (marrow cavity/trabecular bone)
- Structural differences (animal bones are thicker and heavier)
- Different burn marks (not on the pyre?, different morphology?)
  
- The recognition of the species can be difficult/not possible in case of small shards of bone, mainly long bones shafts



# Identification of the human cremains

- Will depend on the fragmentation
  - Will depend on the type of the bone tissue (trabecular/compact)
  - Will depend on the morphology of the bone fragment (skull/long bones)
- 
- Only identifiable fragments will be analysed further



# Identification of human cremains

Cremated remains from Biała site, Trzciniec culture, 1500-1300 BC



Cremated remains from Samławki I site, West-Baltic culture of Cairns, 5-4 c. BC





# Identification proces – parts of skeleton

- From each of the sieved fractions elements belonging to each of the following skeletal regions should be recognised:
  - Skull
  - Trunk (axial skeleton and both girdles)
  - Arms
  - Legs
- The majority of the identifiable fragments will be present in the largest fragments (>10 mm), some of them can be recognized in the next fraction (10-5 mm). The smallest fraction should be checked for the presence of very small bone (distal foot phalanges, smallest wrist bones) or fragments of teeth



# Identification process – recording sheet

- All identified fragments should be recorded in provided sheets/database according to the side of the body they are from
- This will allow obtaining a MNI



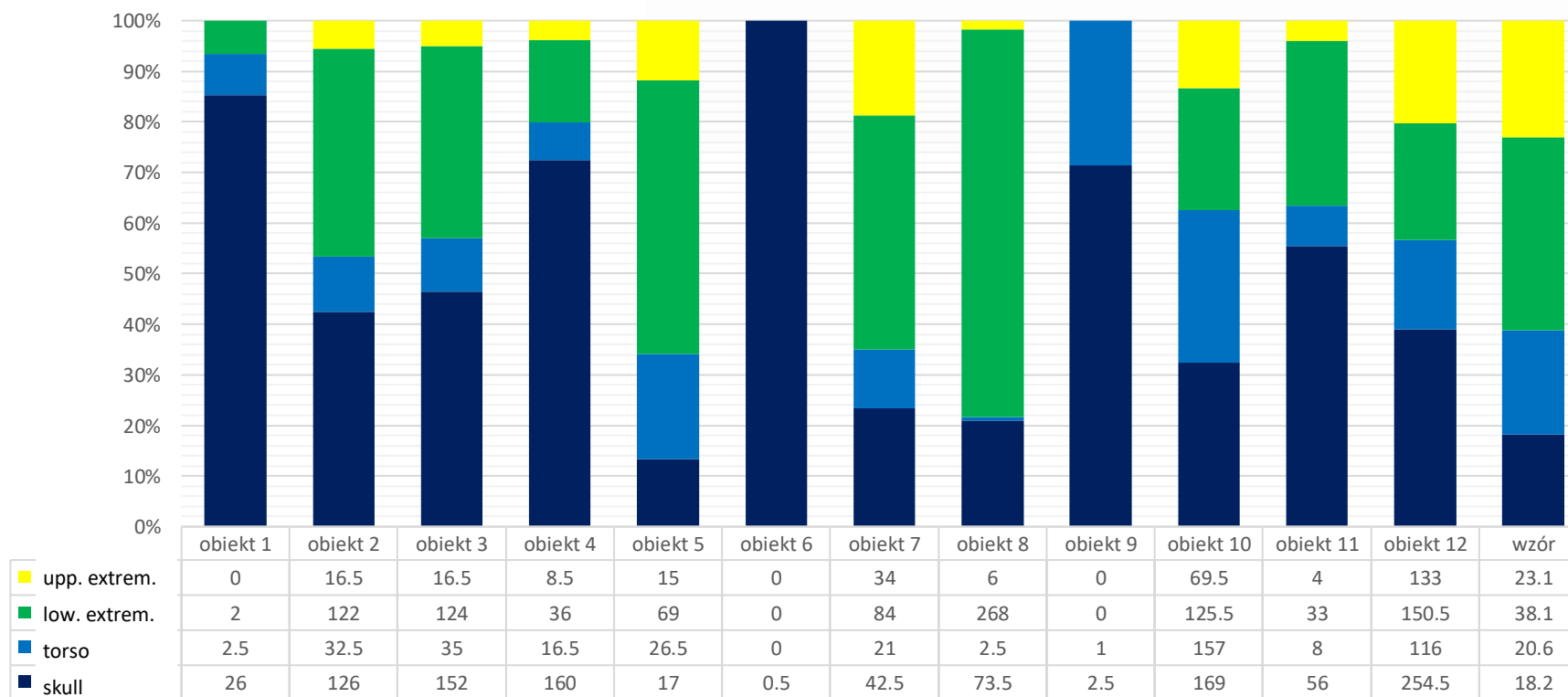


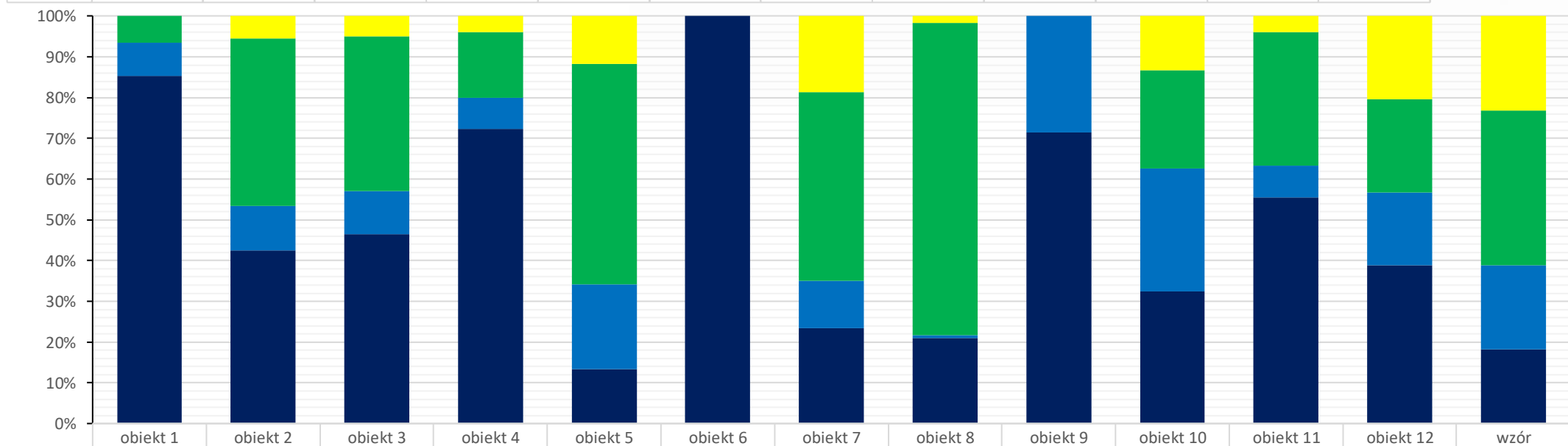
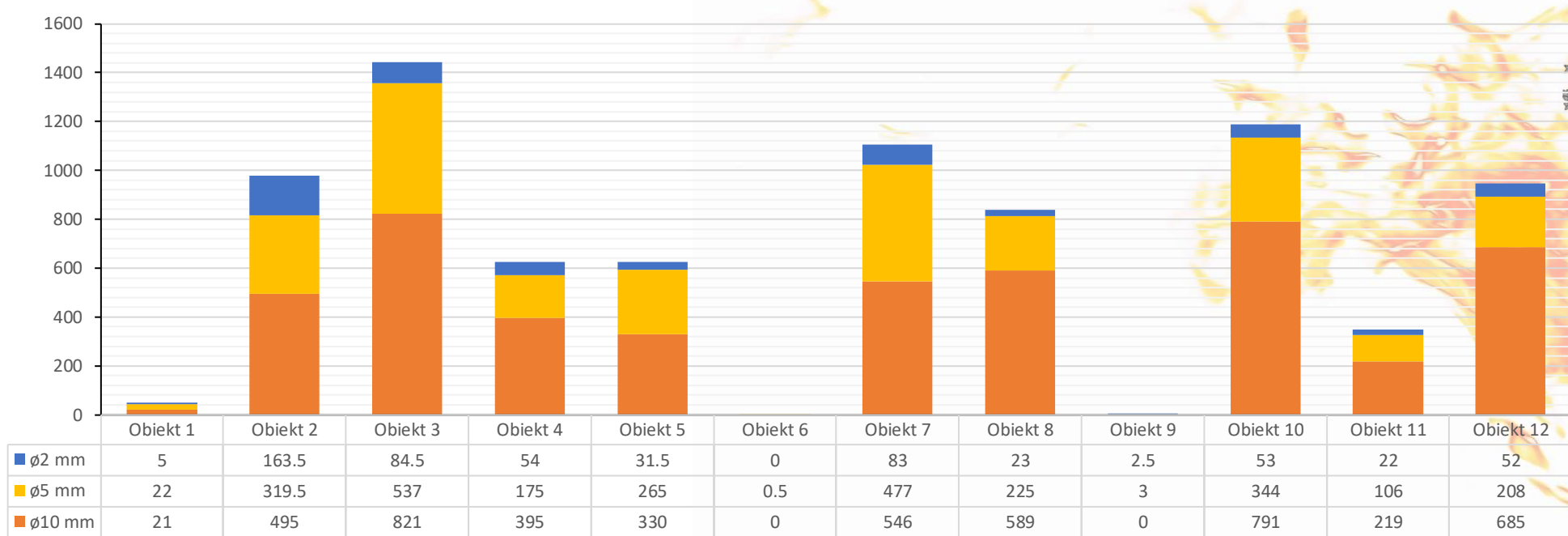
# Identification process – taking weights

- All identified cremains should be weighted by skeletal part (each fraction separately)

# The results

- Here are the examples taken from the analysis of the several burials from Podlesie site, done for the BA thesis on the request of dr. Waluś





upp. extrem.	0	16.5	16.5	8.5	15	0	34	6	0	69.5	4	133	23.1
low. extrem.	2	122	124	36	69	0	84	268	0	125.5	33	150.5	38.1
torso	2.5	32.5	35	16.5	26.5	0	21	2.5	1	157	8	116	20.6
skull	26	126	152	160	17	0.5	42.5	73.5	2.5	169	56	254.5	18.2