

## **Archaeological and Anthropological Sciences**

### **Reconsidering lithic transport in Middle Palaeolithic assemblages: curated and expedient strategies in the Abric Romaní mobile toolkits**

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## **Supplementary Information 1 (SI1)**

### **Analysis on products knapped *in situ***

#### **Elongation index**

|   | L1    | L2     | L3     | L4     | L5    | L6    | L7    | L8    | L9    | Total |
|---|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|
| M | 37    | 458    | 371    | 159    | 33    | 13    | 1     | 1     | 0     | 1073  |
|   | 3.44% | 42.68% | 34.68% | 14.81% | 3.07% | 1.21% | 0.09% | 0.09% | 0%    | 100%  |
| P | 11    | 221    | 269    | 177    | 55    | 28    | 6     | 3     | 4     | 774   |
|   | 1.42% | 28.55% | 34.75% | 22.86% | 7.1%  | 3.61% | 0.77% | 0.38% | 0.51% | 100%  |

Laminar index:

M – 4.46%

P – 12.37%

Thickness index

|   | C1        | C2         | C3         | C4         | C5         | C6         | C7        | C8        | C9        | Total    |
|---|-----------|------------|------------|------------|------------|------------|-----------|-----------|-----------|----------|
| M | 7         | 212        | 407        | 234        | 111        | 60         | 22        | 9         | 11        | 1073     |
|   | 0.65<br>% | 19.75<br>% | 37.93<br>% | 21.8%<br>% | 10.34<br>% | 5.59%<br>% | 2.05<br>% | 0.83<br>% | 1.02<br>% | 100<br>% |
| P | 2         | 61         | 157        | 194        | 136        | 91         | 53        | 24        | 56        | 774      |
|   | 0.25<br>% | 7.88%<br>% | 20.28<br>% | 25.06<br>% | 17.57<br>% | 11.75<br>% | 6.84<br>% | 3.1%<br>% | 7.23<br>% | 100<br>% |

Cortex

|   | 0%     | <50%   | >50%   | 100%  | Total |
|---|--------|--------|--------|-------|-------|
| M | 648    | 277    | 125    | 23    | 1073  |
|   | 60.39% | 25.81% | 11.64% | 2.14% | 100%  |
| P | 512    | 188    | 63     | 11    | 774   |
|   | 66.14% | 24.28% | 8.13%  | 1.42% | 100%  |

Striking platform

|   | Flat   | Punctiform | Linear | Faceted | Dihedral | Cortical | Total |
|---|--------|------------|--------|---------|----------|----------|-------|
| M | 721    | 55         | 105    | 17      | 143      | 32       | 1073  |
|   | 67.19% | 5.12%      | 9.78%  | 1.58%   | 13.32%   | 2.98%    | 100%  |
| P | 317    | 117        | 135    | 16      | 139      | 50       | 774   |
|   | 40.95% | 15.11%     | 17.44% | 2.06%   | 17.95%   | 6.45%    | 100%  |

Technological categories

|                         | M   |        | P  |       |
|-------------------------|-----|--------|----|-------|
| <i>Débordant</i> flake  | 134 | 12.48% | 15 | 1.93% |
| Naturally backed flakes | 14  | 1.3%   | 5  | 0.64% |
| Kombewa flakes          | 8   | 0.74%  | 2  | 0.25% |
| Blades                  | 23  | 2.14%  | 39 | 5.03% |
| Bladelets               | 20  | 1.86%  | 55 | 7.1%  |
| Levallois flakes        | 0   | 0%     | 2  | 0.25% |
| Pseudolevallois flakes  | 2   | 0.18%  | 0  | 0%    |

Retouched items

|   | Retouched | Non retouched |
|---|-----------|---------------|
| M | 15        | 1945          |
|   | 0.76%     | 99.24%        |
| P | 5         | 1685          |
|   | 0.29%     | 99.71%        |

## **Supplementary Information 2 (SI2)**

R code used for the statistical analysis.

```
data <- data.frame(
  LEVELS = c("M", "P"),
  NBF = c(8, 9),
  DF = c(49, 33),
  PLP = c(4, 1),
  BF = c(8, 13),
  DB = c(0, 6),
  BKF = c(0, 1),
  CE = c(0, 4),
  OF = c(38, 75),
  UF = c(7, 21),
  CF = c(6, 0),
  LF = c(0, 5),
  BT = c(1, 0),
  B = c(2, 22),
  RNF = c(1, 0),
  COF = c(0, 2)
)

contingency_table <- as.table(as.matrix(data[, -1]))
rownames(contingency_table) <- data$LEVELS

chi_squared_result <- chisq.test(contingency_table)

print(chi_squared_result)

residuos <- chi_squared_result$residuals

print(residuos)

library(ggplot2)

residuos_df <- as.data.frame(as.table(residuos))
colnames(residuos_df) <- c("Levels", "Flake Categories",
"Residuals")

ggplot(residuos_df, aes(x = `Flake Categories`, y = Levels, fill =
Residuals)) +
  geom_tile() +
  scale_fill_gradient2(midpoint = 0, low = "blue", mid = "white",
high = "red", limits = c(-3, 3)) +
  theme_minimal() +

  labs(title = "Heatmap of Standardized Residuals",
x = "Flake Categories", y = "Archaeological Levels", fill =
"Standardized Residuals") +
```

```
theme (
  axis.text.x = element_text(angle = 90, hjust = 1),
  plot.title = element_text(hjust = 0.5)
```

### **Supplementary Information 3 (SI3)**

#### **Elongation index (following Laplace)**

Length/width = elongation index. Ranges of 0.5:

- 0-1.5: non elongated flake.
- 1.5-2: elongated flake.
- +2: laminar.

| Elongation categories | Elongation index |
|-----------------------|------------------|
| L1                    | 0-0.5            |
| L2                    | 0.51-1           |
| L3                    | 1.01-1.5         |
| L4                    | 1.51-2           |
| L5                    | 2.01-2.5         |
| L6                    | 2.51-3           |
| L7                    | 3.01-3.5         |
| L8                    | 3.51-4           |
| L9                    | 4.01-4.5         |

#### **Flatness index**

Width/thickness=flatness index (use when flakes are longer than wide).

Length/thickness=flatness index (use when flakes are wider than long). Ranges of 1.

- C1-C2: thick.
- C5-C6: flat tendency.
- C7-C9: flat

| Flatness categories | Flatness index |
|---------------------|----------------|
| C1                  | 0-1            |
| C2                  | 1.01-2         |
| C3                  | 2.01-3         |
| C4                  | 3.01-4         |
| C5                  | 4.01-5         |
| C6                  | 5.01-6         |
| C7                  | 5.01-7         |
| C8                  | 7.01-8         |
| C9                  | 8.01-9         |

#### **Index edge/contour**

Percentage of cutting edge in relation to the total contour of the flake.

| Categories of edge/contour | Values   |
|----------------------------|----------|
| F1                         | 0-20%    |
| F2                         | 20-40%   |
| F3                         | 40-60%   |
| F4                         | 60-80%   |
| F5                         | 80%-100% |

#### Index edge/weight

Millimeters of edge per gram of weight. Mm of edge/gram= edge/weight index.

| Categories of edge/weight | Mm of edge per gram |
|---------------------------|---------------------|
| P1                        | 0-5                 |
| P2                        | 6-10                |
| P3                        | 11-15               |
| P4                        | 16-20               |
| P5                        | 21-25               |
| P6                        | 26-30               |
| P7                        | 31-35               |
| P8                        | 36-35               |