Experimental Archaeology Lab Data: Wool Processing (Carding and Spinning)

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1 Objective

The objective of this experiment was to measure the time, efficiency, and material behavior involved in transforming raw wool into thread through carding and spinning, while also documenting experiential observations.

2 Materials

- Raw wool (3 grams)
- Hand carders
- Spinning tool (drop spindle)
- Timer
- Measuring tape

3 Experimental Data

3.1 Carding Data

Trial	Wool Mass (g)	Task	Time (mm:ss)
1	3	Carding wool into fiber	3:31

Observation: Carding produced a full, fluffy fiber bundle.
Derived Rate: Approximately 3 grams per 3 minutes 31 seconds.

3.2 Spinning Data

Trial	Input	Time (hh:mm:ss)	Output Length	Breakage	Notes
1	3 g carded wool	0:08:07	6 ft 7 in	Frequent	Continuous thread produced

Additional Observation: Thread broke approximately 3–4 times every 5 minutes.
Derived Metrics:

- Production rate: ∼6 ft 7 in per 8 minutes
- Breakage rate: ∼3–4 breaks per 5 minutes

3.3 Endurance Observation

Time Elapsed	Observation
2 hrs 45 mins	Most participants were exhausted

4 Qualitative Observations

4.1 Carding Behavior

- Required varying levels of force depending on wool type and quantity
- Resulting fiber was fluffy and less structurally stable
- Texture depended on initial wool characteristics

4.2 Spinning Behavior

Fiber Property	Observed Behavior
Fluffy/carded wool	More breakage, harder to control
Stiffer wool	Easier to spin, more stable
Thicker wool	Increased breakage
Fluffier fibers	Produced thicker thread

4.3 Process Challenges

- Thread frequently broke during spinning
- Maintaining consistent tension was difficult
- Participants occasionally lost track of spinning direction
- Producing uniform thread thickness was challenging

5 Discussion

The results demonstrate that wool processing is both time-intensive and physically demanding. Carding efficiency is relatively consistent, but spinning introduces variability due to fiber properties and user skill. Fluffier fibers increase difficulty and breakage, while stiffer fibers improve control. Additionally, extended participation leads to significant fatigue, indicating the labor-intensive nature of pre-industrial textile production.

6 Conclusion

- 3 grams of wool required approximately 3.5 minutes to card
- 3 grams of wool required approximately 8 minutes to spin into thread
- Thread breakage occurred frequently (3–4 times per 5 minutes)
- Material properties significantly influenced performance
- The process resulted in noticeable physical fatigue over time