DNA Analysis and the Study of Medieval Parchment Books

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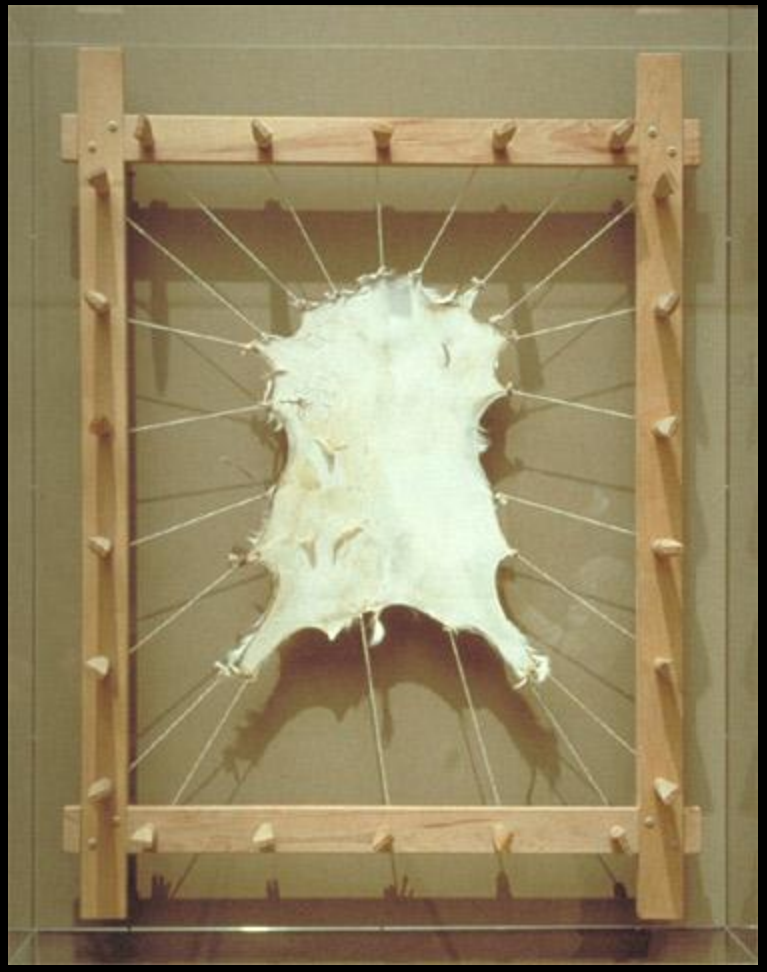
What is parchment?

How is parchment made?

Remove & soak skins

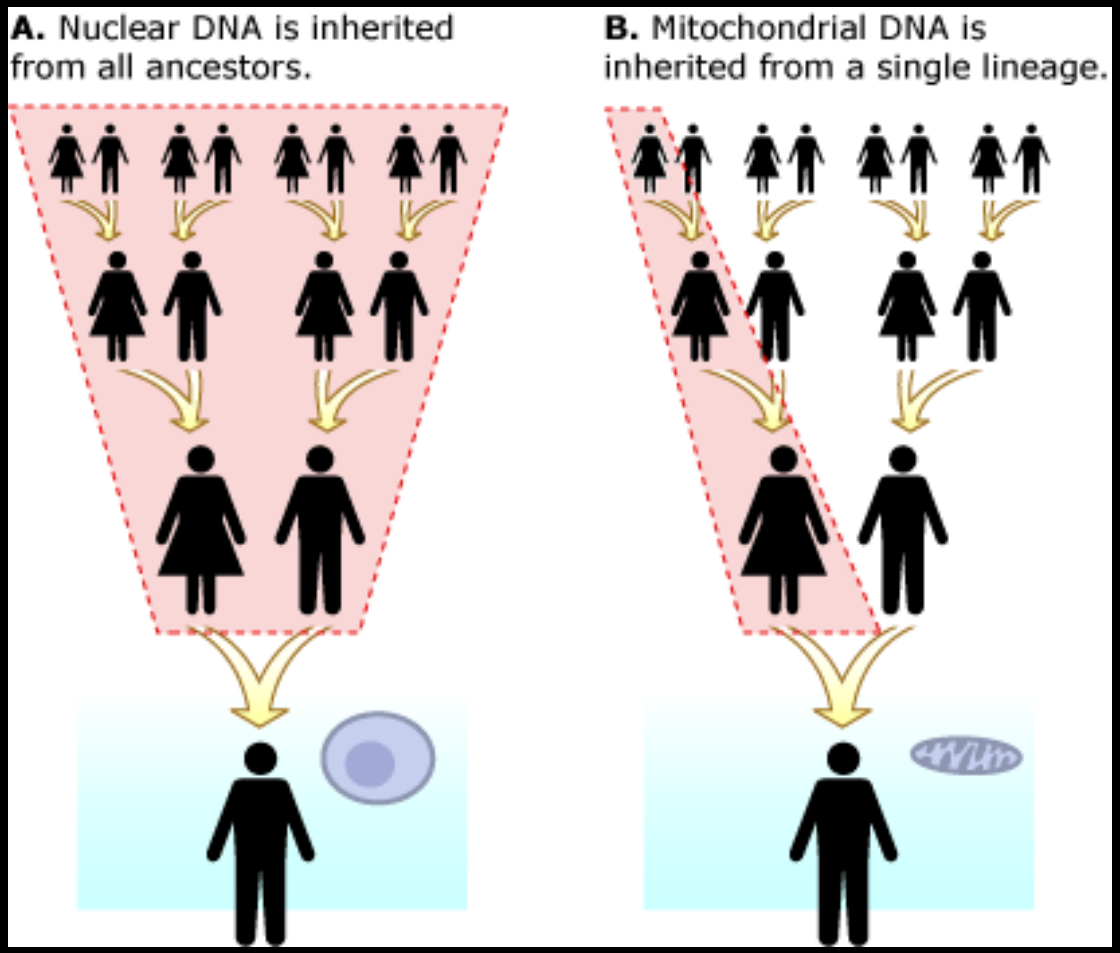
Remove hair from skins

Stretch skins

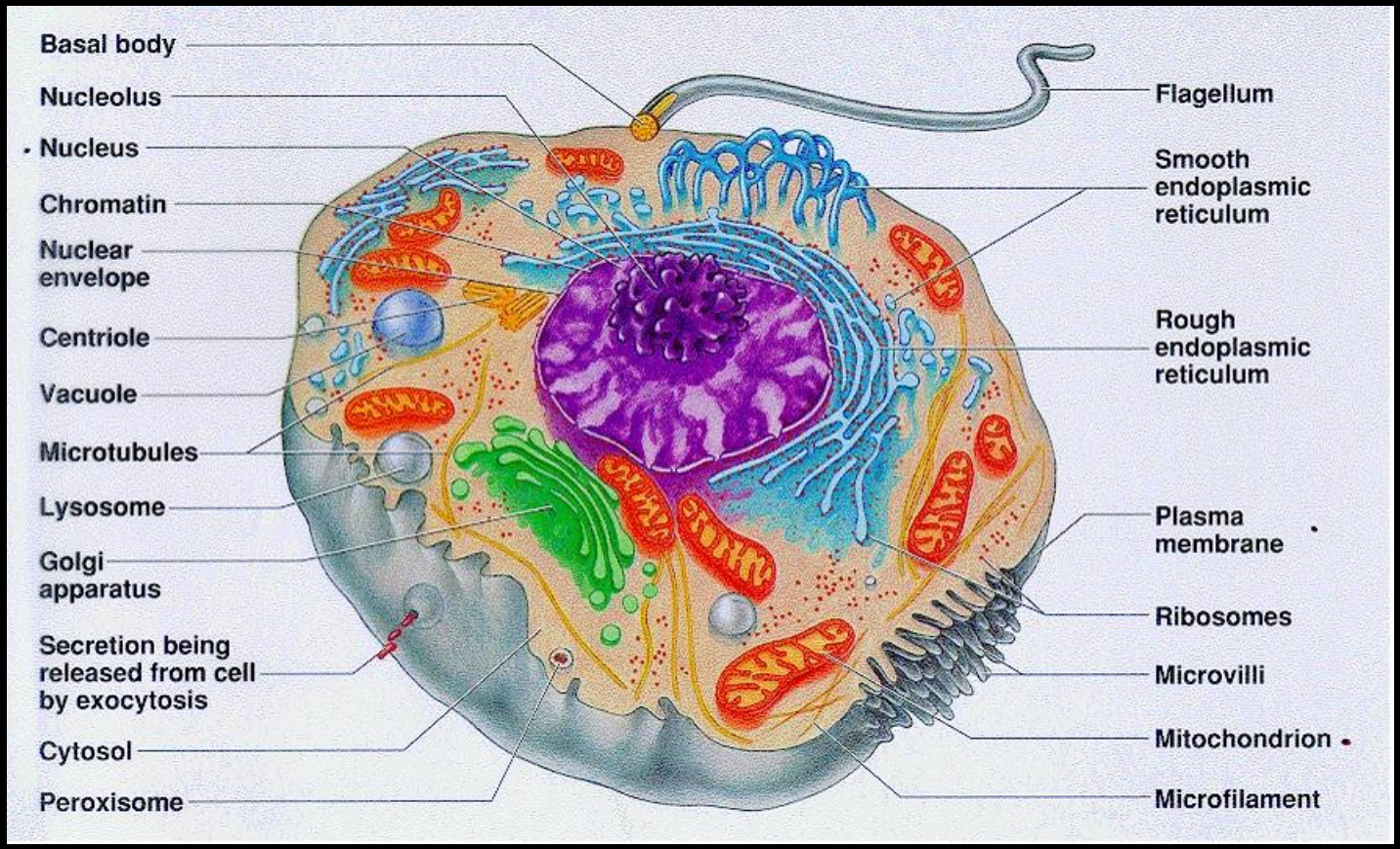


Scrape parchment

Nuclear vs. Mitochondrial DNA



Cell structure

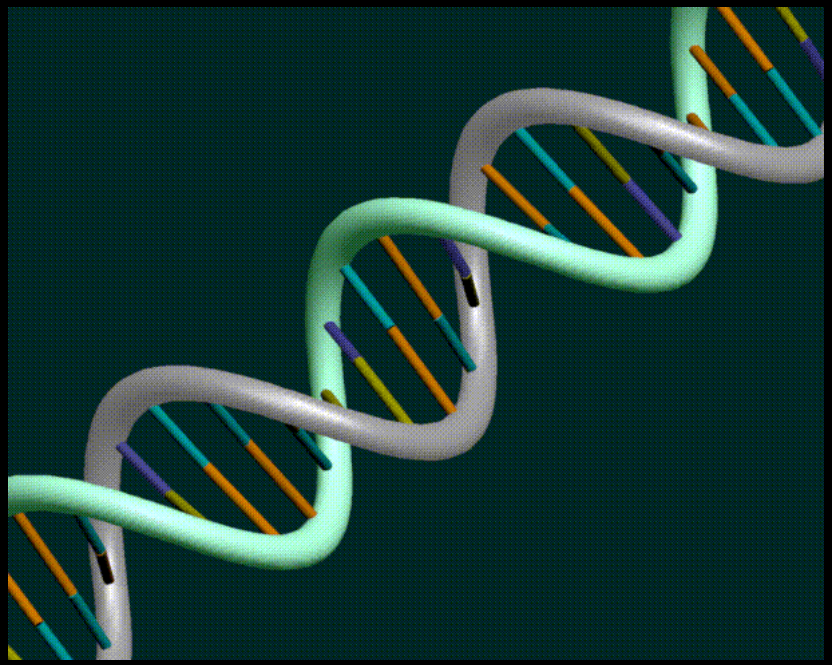


Ancient DNA


You've eaten, all my flesh, can't you allow my bones to rest in peace?

PCR: Polymerase chain reaction

Produces many copies of small, targeted sections of DNA, increasing the size of a sample exponentially through replicating it thousands or millions of times

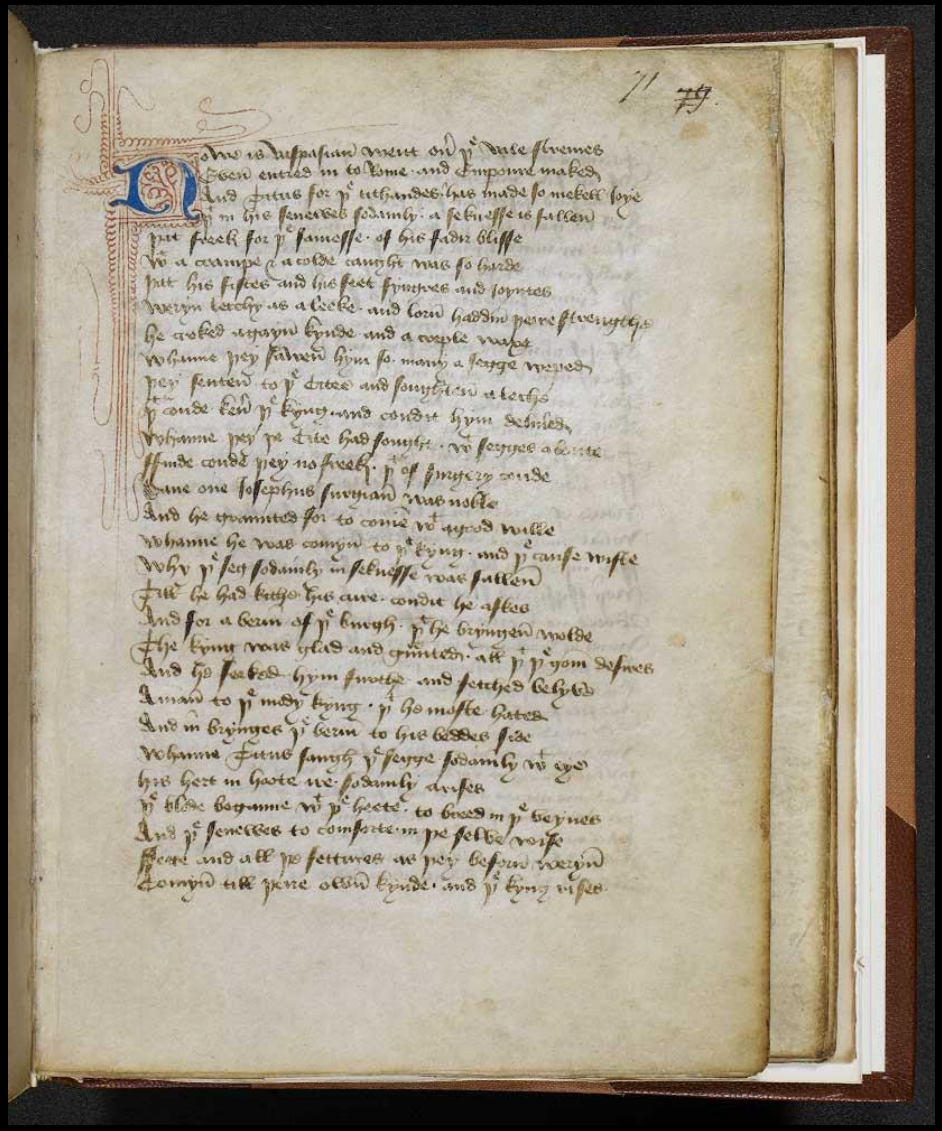


Traditional methods of dating manuscripts:

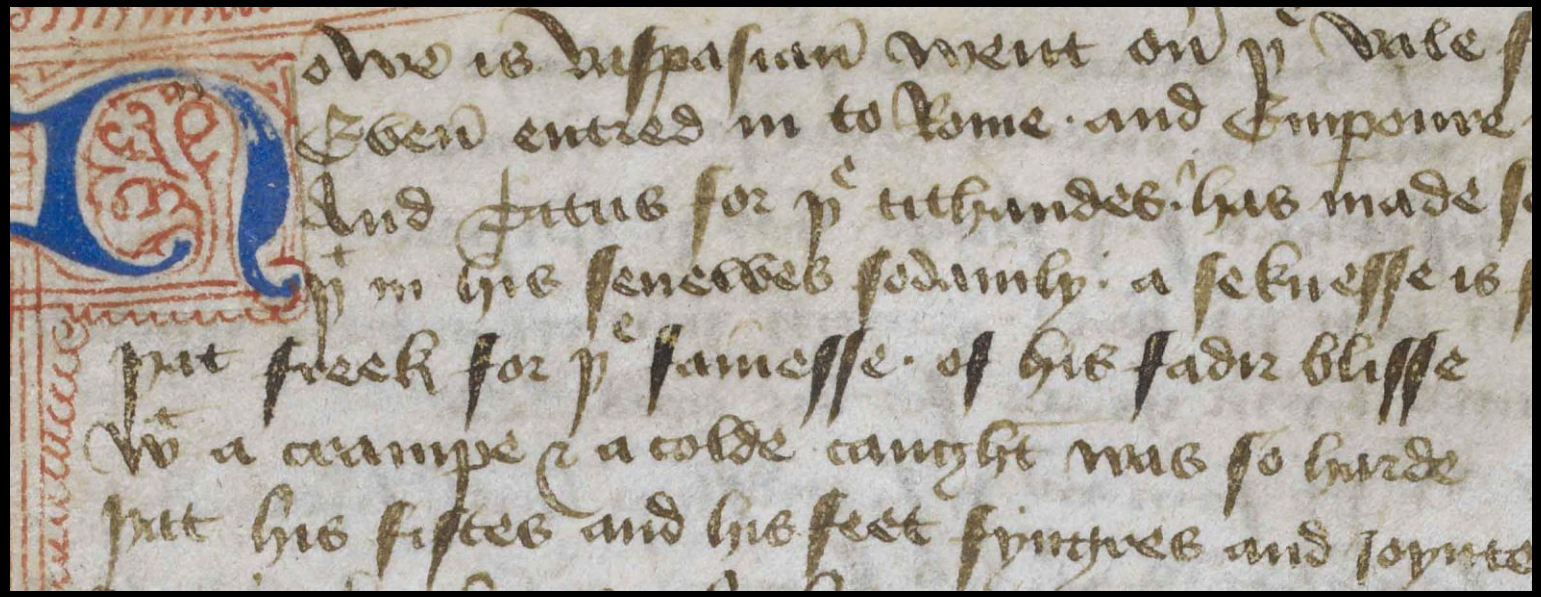
Dialect analysis

276 NOT: 'nat' and 'naght' types.

Handwriting analysis



Handwriting analysis



The manuscript DNA project

Results

Sample	mtDNA Nucleotide Position
	16122
BRS	T
MS 15	C
MS 18	C
MS 19	T
MS 28	C
MS 90	T

Table 2. Mitochondrial DNA Results.

Conclusions:

1. Any organism identified through DNA analysis will not be found to be the ancestor of any other organism found in subsequent analyses of other parchment samples.

Conclusions:

2. We will not find direct ancestors of any identified organism during subsequent analyses of other parchment samples.

Conclusions:

3. Parchment samples from one book copied on calfskin that share mtDNA are unlikely to be from siblings.

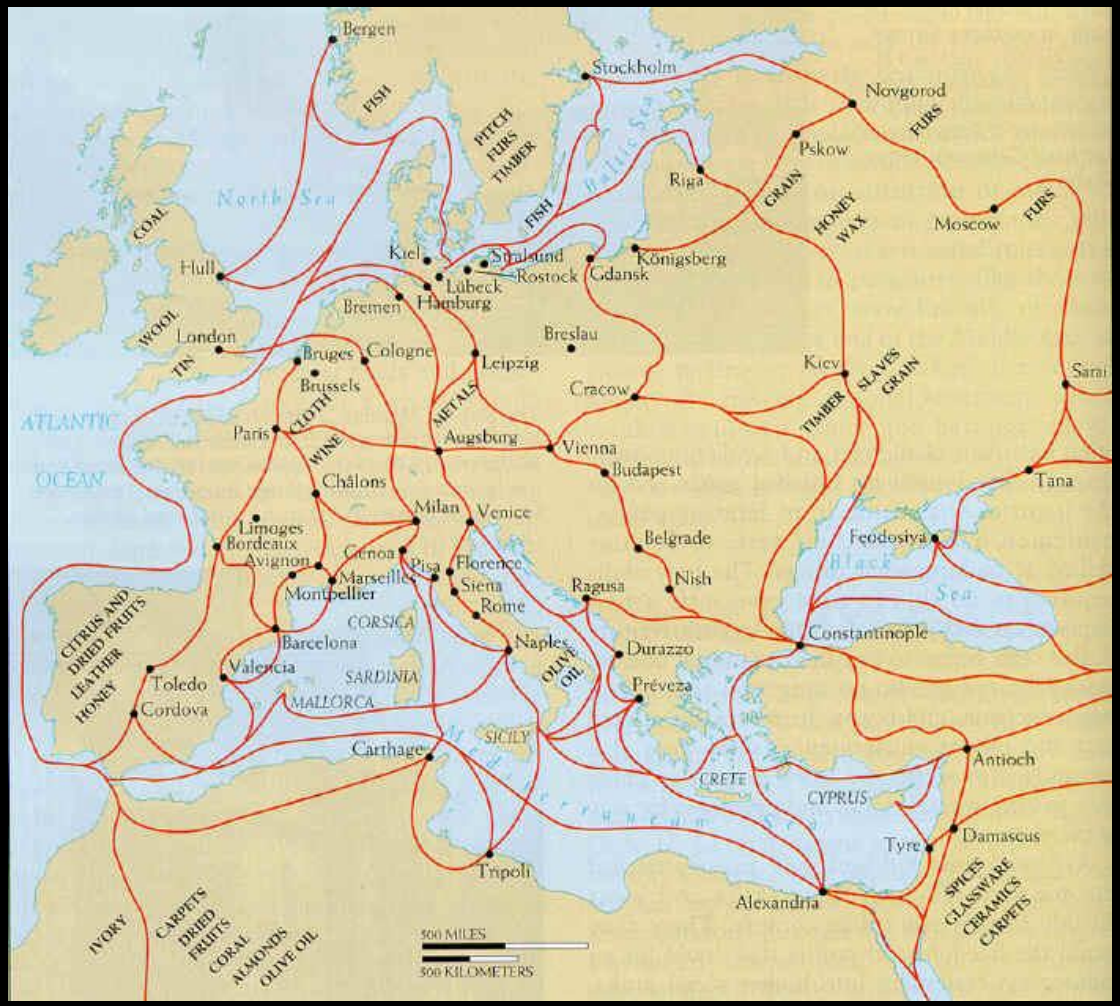
Conclusions:

4. Simplest explanation for our results is that samples with matching mtDNA are derived from same organism, i.e., one calf.

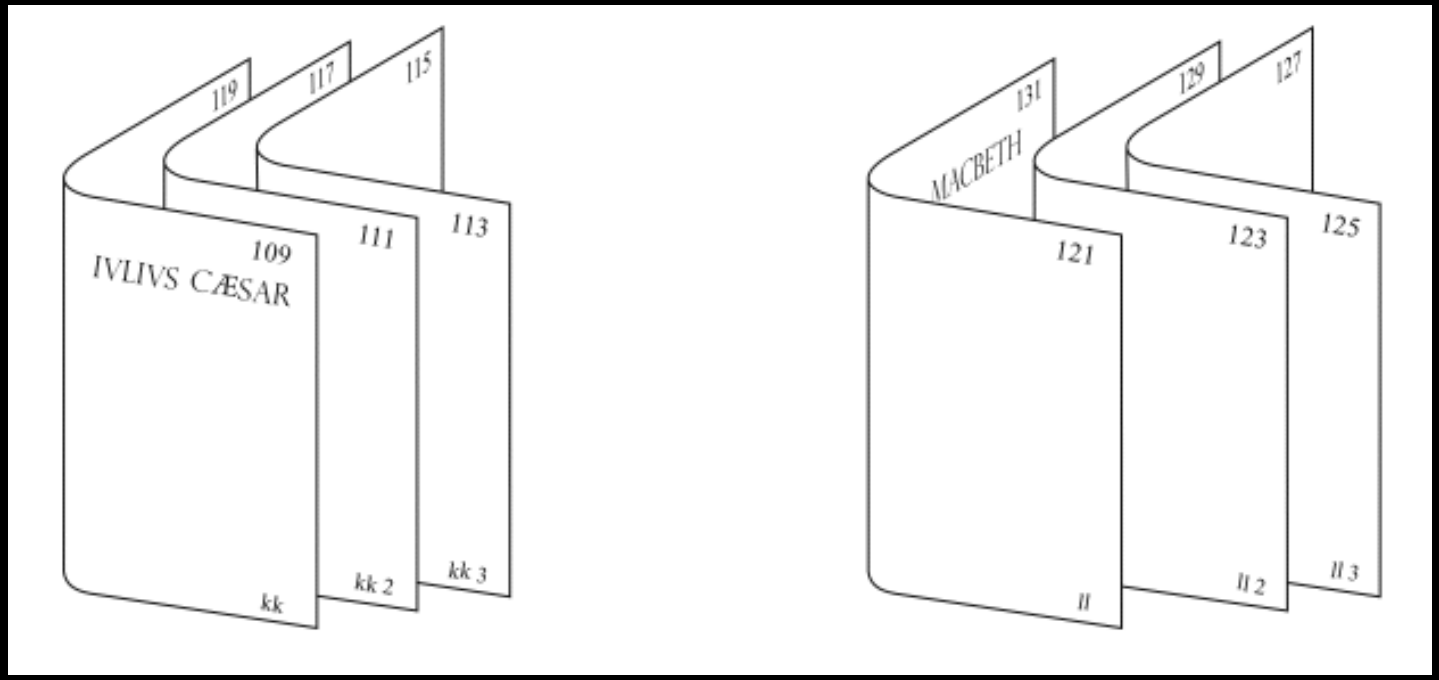
Potential contributions

Localizing herds

Parchment trade



Construction of books



Construction of books

Individual mysteries

Parchment as Archaeological Evidence