

PROCUREMENT PATTERNS OF EARLY HUMANS

A REVIEW OF METHODOLOGIES IN STONE RAW MATERIAL STUDIES

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Procurement and use of lithics reflect human choices and behaviour. Identifying how stone resources were moved around the landscape reflects landscape use, mobility, and social interaction. Early humans developed the ability to produce tools using prepared core techniques having pre-determined flake removal during core reduction with more economic use of raw material such as Levallois technique, for that a good quality raw material was required. The present study aims to shed light on the strategy/pattern of production choices, including those made at the very beginning of the process about what kind of stone to use, various methods involved in identifying the procurement pattern, and why an integrated approach is essential in raw material studies.

Intentional raw material selection associated with early humans:

- Preferred good quality material among different kinds of raw material at the same location [1-3]
- Preferential use of particular raw materials to produce specific tool types [1, 4]
- Economical use of rare/non-local raw materials i.e. retouching [5-7]
- Long-distance transport [8, 9]
- Multiple provisioning strategies or intergroup relationships [10]

Environmental factors that influence raw material selection:

- **Embedded hypothesis:** raw material was acquired during other subsistence tasks [11]
- Terrain difficulties influence lithic production strategies [6, 12]
- Artifact size varies due to available raw material size [13, 14]
- Techno-morphology variation in lithic artefacts due to raw material quality [3]

Where

is the raw material source?

Petrographic and geochemical source characterization of the lithic material offers a way to reconstruct the procurement range, or distance travelled to obtain resources of prehistoric groups. Physical properties and petrography are useful for sample description but not enough to identify the provenance which is defined by geochemical analytical techniques (XRF, ICP-AES and ICP-ES, NAA, PGAA etc.).

How

did they procure it?

The geographical limitation and the recurrent transfers indicate favoured pathways and can be identified from a predictive model of daily exploitation territories (DETs) using maps and statistical tools (ANOVA, principal component analysis, and cluster analysis) that are linked to the frequency of transfers [10].

Why

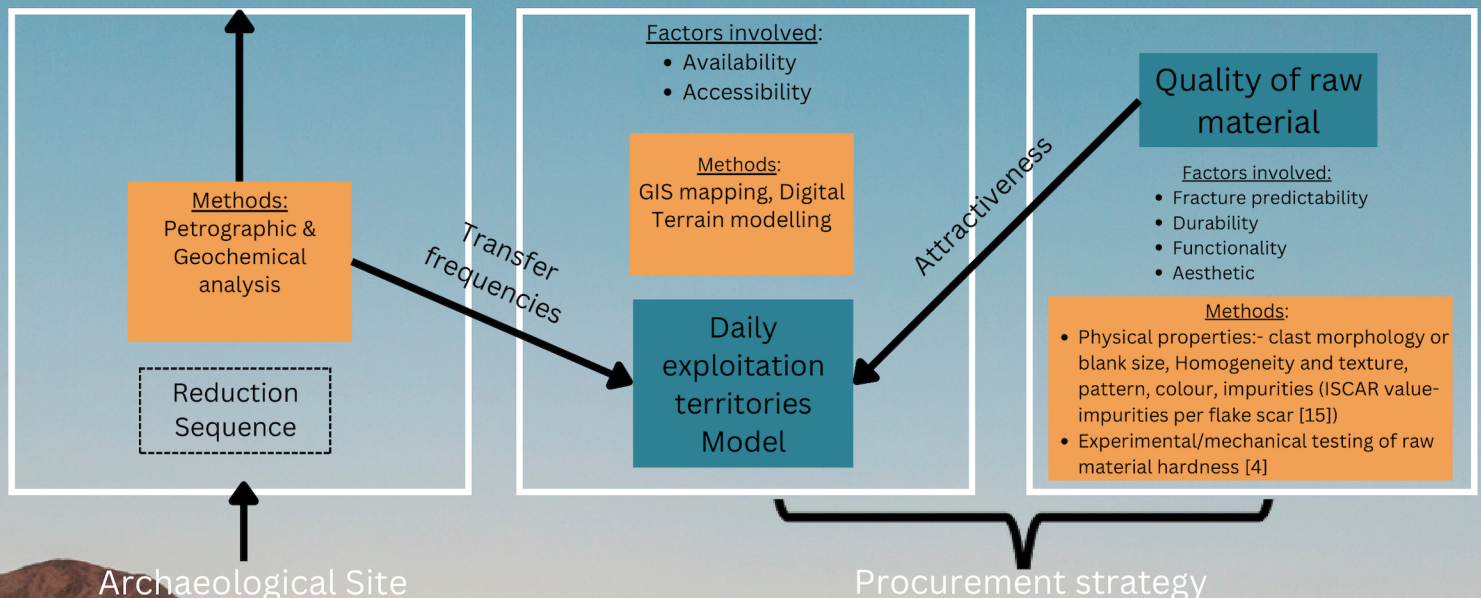
did they select it?

The selection of raw material, apart from the availability, is also considered based on the quality of lithic raw material i.e., fracture predictability and edge durability [15]. In archaeology, lithic raw materials with properties such as brittle, elastic, and isotropic are considered as 'high' quality, and homogeneity and crystalline structure of the raw material can affect these qualities.

Where?

How?

Why?



Conclusion:

Petrographic and geochemical techniques can identify the source of raw material but are unable to answer how and why the source was used. Quality of raw material is required to understand the decision making but the attractiveness of a raw material source depends on the relationship between the benefits and the costs of exploiting it. Hence, **an approach that integrates multiple methods will provide a more reliable and holistic view of early human raw material selection and transport patterns.**

We acknowledge that this meeting is being held on the traditional lands of the Larrakia people, and pay my respect to elders past, present, and emerging.

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