

Ran-thok and Ling-chhom: indigenous grinding stones of Shertukpen tribes of Arunachal Pradesh, India

authors:

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Minor revisions

General suggestions:

- A revision by an English native speaker is needed.
- There are some recurrent mistakes: "grounded" instead of "ground" (p.p. of "to grind"). "Ground flour" does not make much sense: flour comes out of grinding, it is not ground itself. "Bedostone" does not sound very well.
Suggestion: use "lower stone" to name the stone on which the "upper stone" is used for grinding (rolled or pushed).
- The English terminology referring to grinding devices is not consistent. Once a term is chosen, then this has to be used throughout the paper. There are terms that appear at mid-paper that have not been introduced before (e.g. what is the relation between chakki mills and ran-thok? different languages for the same device? is the ran-thok a form of chakki mills or a part of them?). The same applies for modern devices: these are referred to in many ways, which brings confusion while reading, e. g. is "roller-milled" referring to mechanical devices? It is not clear as the term "roller-milled" appears towards the end for the first time. Perhaps the authors can introduce the terms in the beginning of the paper, they may choose to use "traditional mills" vs "mechanical mills". Then they may divide traditional mills in categories (Neolithic "back-and-forth querns", then "rotary mills"). The reader is left with some terminological doubts: for example, are Chakki Mills always rotary mills?. Terminology is fundamental and should really be clarified in the beginning of the article.
- The terminology is not consistent throughout the paper. Only in the end, a glossary is offered. Terms in local language should be distinguished from those in Hindi, and both should go in italics. The reader has to know before reaching the glossary what language is being used.
- The information provided in the introduction, results and discussion should be better organised and laid out in a linear way.
- The mentions to the ancient (pre-modern) grinding devices are not precise. The paper mainly focuses on a type of rotary device which does not appear in the Middle East and Central Asia before 1-2 century AD. Perhaps the same applies to India? This should be briefly discussed by the authors. The reference made in the paper to the Neolithic grinding devices is not clear: grinding rotary devices did not exist at that time. If the authors mention the Neolithic in order to speak about generic, pre-modern milling devices (but not specifically rotary devices), then this should be made clear.
- It seems that the two main points that the authors want to highlight are: the link between traditional grinding and socialising, and the quality of the flour, which is higher when traditional grinding tools are used.

Are these two aspects that have the Shertukpens maintain this traditional technology? Not clear if the authors think this.

In any case, these are two very interesting aspects that should really be highlighted with more emphasis as results of the paper.

- Concerning the quality of the flour produced with traditional grinding devices, the authors say that this flour is preferred by people as it has a better taste; however, they add, flour from mechanical devices is much more consumed. This sounds like a contradiction. Perhaps the authors want to say that, despite the taste, people tend to consume more flour from mechanical devices as this is cheaper and more accessible? If this is the case, it should be explained better.

Some specific recommended changes:

- 3rd line of introduction section: "...to human survival during the past years" suggest remove the word "years"
- 6th line of introduction section: change order to "Upper Palaeolithic and Neolithic" (for chronological consistency).
- 8th line of introduction section: remove "these implements are often called grinding stones".
- 4th paragraph of introduction section: remove ", etc."
- 7th line in results section: typo in "gething" - should be getheng
- 12th line in results: "both the stones" - remove "the"
- 13th line in results: remove "by the stones".
- 2nd paragraph in results: last sentence starting in "Further reports ...)" seems to be missing a verb.
- 3rd paragraph in results: "So, they (...)" change to "interviewed villagers" or similar expression to detail who "they" is referring to.
- p.5 line 3: "The the wooden tool is 20cm" => one "the" should be removed
- p.6 line 3 and 4 from bottom: "which noticeably improve the flavour" & "gives it a subtle smokey flavor" => please normalize choosing between "flavor" (US) or "flavour" (UK)

Points for specific sections:

Abstract:

- The abstract doesn't include the method of investigation and the results of it.

Keywords

- The keywords are not accurate. Suggestion: India, Arunachal Pradesh, Shertukpen tribe, Indigenous culture, Grinding stone;

Introduction:

- In the Introduction: "However, declining availability of raw materials such as wood and bamboo has encouraged Shertukpen artisans to adapt to their environment and become skilled experts in making stone tools." Could you please make clear if this is your observation or suggestion or if the Shertukpens explained that to you? Indeed, the direct link between the increase of stone tool production and decrease of woody raw materials is an interesting observation if this link is supported by concrete data. This may bring interesting element of discussion for the interpretation of some archaeological material in certain cases (for example concerning the bamboo hypothesis in South-East Asia, even if the contexts are different).

Results:

- The caption of the figures is too short, please explain a bit.
- The text inside the map is not readable.
- It needs a table including the places and the types of grinding tools with some more details such as size, types, materials, etc.

Discussion:

- Nixon-Darcus, 2014 thesis should be cited in the discussion paragraph about Ethiopia and removed from the conclusion.

Major revisions

General suggestions:

- It is difficult to classify the article into a specific research area. Is this article a documentation of "cultural heritage", a kind of ethnological study/cultural anthropological study, or a sociological study. Although the objects are studied, it is very interesting that the users are also included. However, it is not clear from the text what the goal of the study is. Especially in the abstract and in the introduction, a clear statement of the goal of the work is missing.
- The literature cited often refers to archaeological work. However, the subject is about modern objects and modern people. The interviews with the people who create and use these stones are a plus. But the data basis and the systematic evaluation of these is missing. The questionnaire with the questions that were asked to the people could be attached and then the evaluation, according to which criteria the statements that occur in the text were worked out. This would make the relation between the people and these objects better understandable.
- In the description of the stone objects there is a lack of a methodical approach and a data basis on which a systematic evaluation could be made. For example, a simple chaine opératoire description could be used here for the manufacture. Little information is given about the manufacturers.
- Separate the usage. Are the manufacturers and users the same? Is there a specific professional group that makes these stones? Or do people make these objects according to their own needs? Are they also sold or traded?
- In terms of use, the description of the exact sequence of gestures that the users perform in order to use a particular object could be a good contribution.

- Describe the manufactured product more precisely. All these steps would have to be gone through for each category of stones (once for Ran-thok and once for Ling-chhom).
- Indispensable is to explain why these objects are so unique and why they are worth preserving. While this is implicit in the text, it should be made explicit. This can be done very well with comparisons from the region that could emphasize the special nature of the objects in the study.

Points for specific sections:

Introduction and background:

- It seems that the authors are introducing the reader to grinding stones and nutting stones technology from Shertukpen tribes. It is easy for the reader to get lost in the section. Particularly in the first paragraph: there is a lack of connection between ideas and some sentences seem isolated in a paragraph that becomes circular and repetitive.
- It is not clear whether the grinding stones and nutting stones technology presented in the introduction refers to a global or particular form of technology or particularly to the one developed by the tribes under study. In this sense, are the raw materials referred to in the second paragraph (beginning in "Nutting stones have...") the ones used in the study region in India or Texas (from the cited author)?
- In the 3rd paragraph authors indicate there are 26 major tribes and proceed to name 15 of them - what is the criteria of choice? Rephrase this.
- (last paragraph of intro) Authors indicate that the Shertukpens are "good at wood carving and stone sculpting". Then carry on with "However, declining availability of raw materials such as wood and bamboo has encouraged Shertukpen artisans to adapt to their environment and become skilled experts in making stone tools". - It is not clear whether stone technology is a tradition or a more recent adaptation. Overall, this paragraph is confusing.

There is a lack of information about the area of study which should be moved to after the intro and before the methods.

- The motivation and question are not clearly presented. The history of grinding stones and their types of tools is poor.

Methods:

- Authors indicate 120 households from 12 villages? Which?
- What questions were included in the interviews? What are the details of the interview population (gender, age, occupation)?

Results:

- It would be interesting to see more details on the interviews described in the method section. Are there differences between villages in terms of raw material used; stone tool mean size; proportion of grinding tools and nutting tools.
- The type of stones is important on the quality of grounded flour and the reason that people choose them is fundamental when you want to do an investigation on the grinding stone. Also, it

would be interesting if the origin places of these grinding stones were specified on the map. In addition, the types of wooden planks and the variety of them are important.

Discussion:

- Some of the problems with the introduction are present in the discussion - discourse needs to be reorganised to have a clear thread and to answer questions that are only implicit throughout the text.
- Suggest moving the first paragraph of the discussion to the introduction of the article.
- Not clear what “take care” means in this sentence. Rewrite the second paragraph. It is confusing.
- Discussion focuses on women interaction during grinding activities. Some questions arise that could be answered in the results section such as: is this an activity performed only by women? What is the labour division - e.g. one group produces the tools, another group uses them?
- Are there differences or similarities between the households interviewed? If this is a first approach to the region technology from an ethnographic and anthropological point of view then it should be referred to in the introduction.
- The discussion needs to be revised. It focuses mainly on social interactions but it needs to discuss the manufacturing of grinding stones and traditional methods as well as the reasons for the utilization of grinding stones until now in some regions. Also, the types of stone should be considered and the accessibility of the stone from the mountain must be investigated because is effective in the usage of them.

Conclusions:

- In this section, avoid having references or new information not mentioned prior in the article.
- The conclusion focuses too much on modern mechanical technology. What are the conclusions drawn from the analysis on stone technology?
- The first sentence seems to be a cited conclusion from other authors and for this reason, it be moved to the discussion sections.
- The authors conclude the technology is “environmentally friendly”. Explore this idea more in the discussion and elaborate more on this sentence.
- Revise and explain the achievements of your investigations.