Neolithic Bone "Beamers" from Hungary:

An article in cooperation with Alice Choyke, archaeozoologist from the Central European University at Budapest, Hungary.

Typological and Archeological Facts:
This type of tool appears in considerable numbers in late Neolithic and Chalcolithic sites all over Hungary and also in Austria. It was thus in use for at least 1000 years. The artifacts are almost exclusively made from metatarsal of cattle or red deer, the species depends mostly on availability. Tools are characterized by continuously renewed and sharp edged facets along the whole length of the diaphysis, sometimes on one, two, three or all four sides. For the sharpening flint tools were used. Eventually the compacta gets too thin in the center and the tool breaks. Facets are created on the dorsal/plantar surfaces first and then, more rarely on the medial/lateral sides. Choyke suspects the curved facet is first established from one end of the diaphysis to the other (never extending onto the epiphysis) and then renewed as the two parallel edges get dulled. The tool seems to have been pulled with one hand on either epiphysis. It is very rare to find these tools complete, thus different stages of production/use can not be studied. They are used up very intensively. From analogy with similar objects from ethnographic and historical contexts these tools might have been used to clean hides pinned to tree trunks and are thus termed "beamers".

Experimental Manufacture and Use of Beaming Tools:
1. Manufacture and Use of first Tool:
   Raw material: Metatarsus of red deer. 27cm long, diameter at center of diaphysis 2,0 by 2,1 cm.
   Intention: Recreating a tool with prehistoric methods from the initial shaping to its first stage of usability. Observing use wear through prolonged use and continued resharpening.
   Manufacture: Creating facet on dorsal and plantar sides, with a flint/silex with steep angled working edge, 45-90 degree; (resharpening flint by retouching working edge is not very proficient. Better take a new flake after edge is dulled). Alternatively, the rough work to create the initial facets can be achieved by grinding against a course rock or sandstone. (Some deep cuts are visible on certain beamers, maybe from initial grinding on rough surface?) and then doing the fine tuning with a flint. This way proved to be the faster approach. A facet can be created in about 15 minutes. These first working edges have very steep angles slightly larger than 90 degree, due to natural shape of bone. They are straight on one side and slightly curved on the other. Thus they only show promising keenness towards proximal end of tool, where the profile of the diaphysis is more square.
   Use: Tool was tried on deer skins. The hides had been salted and were rehydrated before scraping by soaking in a creek for 24 hours. For scraping a rather narrow upright wooden beam of 6 cm
Creating initial facet on tool 1 with flint blade.

Breaking through the compacta on the medial and lateral sides of tool 2.

Creating initial facet on tool 1 with flint blade.

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Conclusions from Experiments: Some so called “beamers” make effective, long lasting wet scraping tools for cleaning skins up to size of red deer. Nevertheless, judging from the provided photos, some of the original artifacts do not seem to meet the necessary requirements to make a tool effective for scraping larger sized animal hides, as their active working area is rather small or short. Maybe they were used especially for small fur bearers on very narrow beams or they were intended for something different, like peeling bark of small diameter wood. Likewise some tools feature working edges not keen enough for scraping hides (see specimen at bottom right) and must thus have also been used for something else. It appears, that the tools simply lumped together as “beamers” need to be looked upon more intently, as they might include a whole range of different artifacts. Experiments do not clarify why metatarsus were used almost exclusively and not metacarpus. Both narrow and long bones (red deer) as well as shorter and stouter tools (cattle) make usable scrapers. Choice of bone material thus most likely follows the general terms of availability. Furthermore, judging from my experience with comparable edge tools, these beamers are less effective than bone scrapers which feature working edges of much less than 90 degrees, such as rib scrapers. This is due to the overall resharpening time being longer, as well as the fact that the edge needs to be kept sharper to be effective, than on tools with smaller angle working edge. Comparisons of microtraces of usewear between originals and reproductions are still pending.
To the right are images of some of the original artifacts from different eastern Hungarian locations. (Photos by Alice Choyke)