

Recreating Aesthetic Tooth Filing from The Viking Age



Filed teeth on a man found in the mass grave in Dorset, England. Photo courtesy the British Museum

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INTRODUCTION

Tooth filing has been employed throughout history to smooth the rough edges of broken teeth and to adjust teeth which would modernly be moved orthodontically. Aesthetic tooth modification has shown up in a few scattered cultures throughout human history; it has been performed by a few cultures in North America and Africa, and applying decorative elements to teeth were performed in pre-colonial Central America and the Philippines. The only known examples of aesthetic tooth shaping on the European continent are examples of decorative filing of the front teeth, almost entirely in modern Sweden. These alterations are notably different from examples in other cultures.

GEOGRAPHIC AND TIME DISTRIBUTION OF VIKING FILED TEETH



(2)

The vast majority of filed teeth have been found in Gotland, an island belonging to modern-day Sweden. Gotland was a hugely important trading hub during the Viking era so many different peoples came through. Most of

the remaining finds are in eastern Sweden, geographically near Gotland, and a couple were found in England. Analysis of isotopes found in the skeletons reveal that some people were from Gotland and moved elsewhere, some moved to Gotland from elsewhere, and some were lifelong residents of the island, but almost all had spent enough time on Gotland for it to show up in their skeletons.

Dating of the burials shows that the filing was popular from the early 8th century to the mid-11th century CE. No skulls have been found outside that time period, except for one outlier: one skull found in Egypt dated to somewhere between 300 and 600 CE. The Egyptian skull has horizontal grooves exactly like the Viking era grooves, which anthropologists have as yet been unable to place in context. (2, 7)

DEMOGRAPHICS OF TEETH

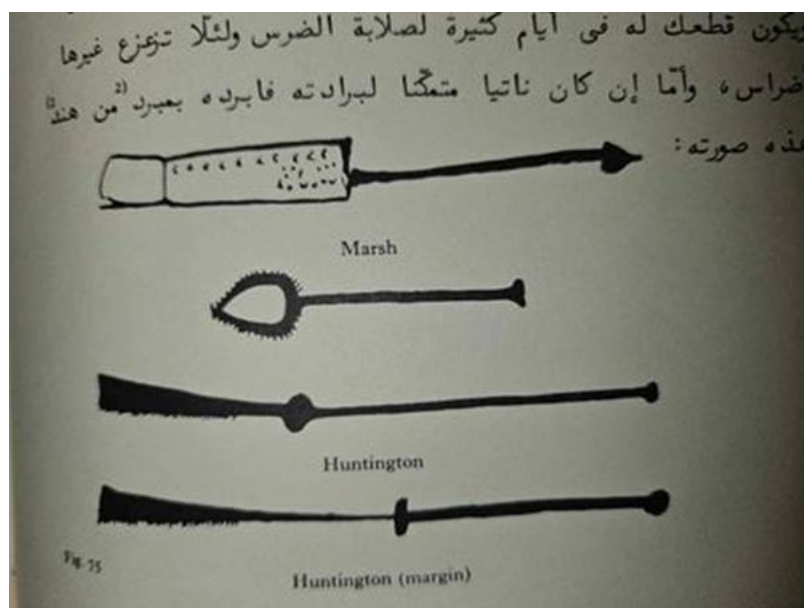
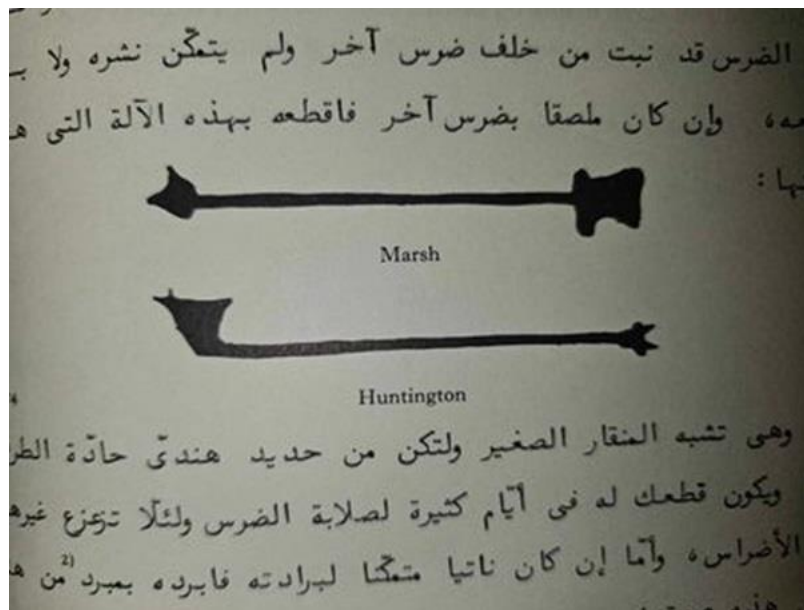
Filed teeth are found entirely in male-bodied people age 18+. They are well distributed between all social statuses, all burial types, and many vocations. Archeologists have been unable to connect tooth filing with any social aspects outside of sex and age. Many of the teeth had build up of calculus in the grooves indicating that they were made while the person was alive. (2, 10)

Filing teeth in contemporary texts

We have a contemporary text which discusses filing the edges of broken teeth, and filing down teeth which are overly large or are misaligned and interfering with normal function. Albucasis (died 1013 CE) explains:

“When teeth grow in other than their natural place the appearance is very bad... If the tooth projects in such a way as to make filing possible, use a

file of Indian iron, shaped like this... You should file the tooth with it very slowly and gently over a period of many days so as not to shift the tooth and cause it to fall out... If it be a tooth of which part has broken off and it hurts the tongue in speaking, file it down till you have disposed of the roughness of the break and the tooth is smooth and neither injures the tongue nor hinders speech.” (7)



I have been unable to document a direct transmission of dental knowledge from the Arab world to the Norse, but we do know that contact between the cultures was common throughout the Viking era, so it is possible that the Norse were exposed to Arab tooth filing. There were also contemporary cultures in North America and modern-day South Africa who filed teeth for cultural/aesthetic reasons but there is no direct evidence that the Norse of this time had contact with these cultures. (1)

FILES USED

Albucasis states that files used for teeth should be

“..of Indian iron, shaped like this. It should be wholly manufactured of Indian iron, its handle too, and covered with very fine points to resemble the file used in making needles.” (7)

In Viking-age Scandinavia iron mining and manufacturing were significant. I am unsure why Albucasis specified Indian iron for the files, but the Norse made many iron files domestically which could have been sufficient for filing teeth. They also produced some steel. (4)

The Mastermyr find, an early Viking age tool chest found on Gotland, included three rectangular metal files, measuring approximately 8.25”x 0.3”x 0.2”, 6.5”x 0.3”x 0.2”, and 6.25”x 0.3”x 0.19”. While they are long, they are narrow enough to make marks in teeth. I have had difficulty finding good, detailed photos of extant files so I made my choices for my reproduction based on descriptions. (3)

MY ATTEMPTS TO RECREATE THE FILING TECHNIQUES

Below are several extant filing patterns and my attempts to recreate them with false teeth:



Fig 74 Not all filed furrows are horizontal, there are cases with diagonal furrows. (Photo Staffan Hyll)





Fig 75 In some cases, the filed furrow only extends over half the tooth. (Photo Staffan Hyll)



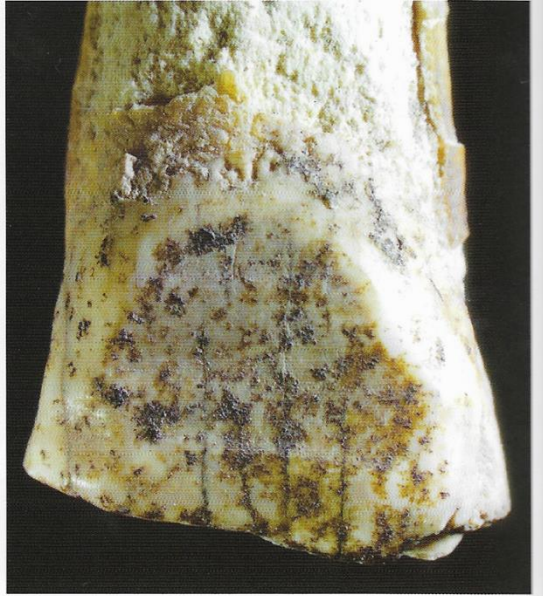


Fig 76 In several cases the technique used is to file the slightly convex tooth to achieve a flat surface, into which the horizontal grooves would be carved. (Photo Staffan Hyll)





Fig 81 Filed teeth from Dorset, England, with a crescent shape and another stripe on the front teeth.



I also attempted to file grooves in a real extracted human tooth with steel files. I was able to create a shallow groove in the enamel but in the process the enamel fractured. A healthy live tooth would not likely fracture under the same circumstances because teeth which still have their blood supply are much less brittle and can be filed safely, although modern filing of teeth is almost always done with diamond sandpaper.



Why I used fake teeth

The shape of the tooth is extremely important to how the file marks turn out, I needed upper anterior teeth to show the shapes but I couldn't get real upper anterior teeth to file on (unless I bought from unethical sources) so I used fake teeth made to the proper shape.

[file on some typodonts, include faking the occlusal wear with the large file, file on some extra large fake teeth as well for easier visibility]

[insert diagram of tooth layers so they see enamel/dentin]

[insert Mohs hardness score for enamel/steel/iron]

[give people a file and a real tooth to try filing on]

[try to find contemporary file info for other materials than iron and steel]

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