

VTT examined the first bottle of 170-year-old beer

27 June 2011

Finnish research center VTT has examined one of the five bottles of beer salvaged last summer by divers from the wreck of a ship that sank an estimated 170 years ago in the Aland Islands.

The examination yielded a wealth of detail about the beer, even indications of how it was brewed. The research will continue by examining another bottle.

VTT Technical Research Centre of Finland was commissioned by the Government of Aland to study the composition of the [shipwreck](#) beer and identify the type of yeast used to brew it. The aim of this project was to study what early 19th-century beer was like and whether its production process could be reverse-engineered and the beer replicated.

The study involved an analysis of the physico-chemical properties of the beer and microbiological and DNA analyses of the beer, bottle and [cork](#). In particular, the aim was to isolate any living [microbes](#) found.

The bottle contained a liquid that was a beautiful pale golden colour, identified as beer because of the presence of malt sugars, aromatic compounds and hops typical of the beverage.

The beer in the bottle examined has not stood the test of time well, and it was contaminated by salt from [sea water](#).

Dead [yeast cells](#) were discovered in the beer, indicating fermentation that took place long ago. Live lactic acid bacteria were found in the beer. Especially in earlier times, [lactic acid bacteria](#) were often present in beer fermentation alongside brewing yeast.

It would appear that the contents of the bottle examined by VTT were in a worse condition than those of the bottle that broke during the course of

the dive.

The examination will continue with the opening of a second bottle retrieved from the wreck. This may yield new findings. The goal remains the discovery of living yeast cells.

Provided by VTT Technical Research Centre of Finland

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