**What is a Lime kiln?**

The technique of producing quicklime from limestone dates back to prehistoric times. This process has been known north of the Alps since the Roman occupation. During this process, referred to as calcination, limestone undergoes heating to yield quicklime (calcium oxide). As a result, the water bound within the stone evaporates, rendering it friable—meaning it crumbles easily, making it suitable for crushing or grinding. Quicklime had diverse applications, such as binding when mixed with sand and water to create mortar, plaster, or screed, acting as paint and disinfectant (in latrines and stables), and serving as a fertilizer additive. The addition of water to quicklime produced 'slaked lime,' also known as 'hydrated lime,' which could be stored for extended periods in a lime pit. A lime kiln comprised a circular firing chamber with an opening to fuel the fire and a lower channel for oxygen supply and disposal of resulting ash.

**How does a Lime kiln work?**

Limestone rocks, observed here in a local stream, were lifted using a ramp, placed inside the firing chamber, and arranged to construct a vault, forming a combustion chamber underneath. Small chimneys within the stone fill ensured uniform heat distribution throughout the firing chamber. As the water in the stones evaporated, the color and character of the rising smoke changed. An experienced lime burner understood precisely how vigorously to feed the fire to attain the required temperature of 900-1200 degrees Celsius and for how long to maintain it until all the limestone became sufficiently dry and friable. Toward the end of the firing, the air channel was closed to sustain a constant heat.

**The Ellmau Lime Kiln**

Following the archaeological excavation from 2020 to 2021, Ellmau now boasts the sole restored and accessible lime kiln in North Tyrol, providing evidence of a once-widespread craft in our region. According to the 1887 purchase contract, it was associated with the "Badhaus" farm in Wochenbrunn, and its masonry indicates a dating around the year 1800. Originally, a lime mill was also present. The Ellmau kiln could accommodate approximately 8 cubic meters of stones weighing about 12-15 tons. Firing this quantity of stones necessitated approximately 24 cubic meters of firewood. The firing process spanned 2-3 days, with wood added constantly day and night, followed by a cooling phase of 2-3 days. Over the course of the firing process, burners and assistants were engaged for about a week, loading and unloading the firing material. This task was in addition to collecting and transporting the limestone, as well as cutting and preparing the wood. One firing yielded 8-10 tons of quicklime. Given that many of these lime kilns were operated part-time by farmers, only one to two firings occurred annually. The Ellmau lime kiln has been reconstructed with the firing chamber filled, resembling its state just before firing. In the past, quicklime was an indispensably vital construction material, leading to its production wherever free limestone and wood were in proximity. Numerous small kilns along the dolomite limestone mountains, such as the Wilder Kaiser, supplied local construction sites. Until the late 19th century, the demanding labor remained worthwhile, and lime kilns remained active at the base of the mountains until cement and other modern construction materials replaced lime. As a result, these kilns vanished from the landscape and from the collective memory of the population.