

THE IMPACT OF CLIMATE CHANGE ON BRITISH VITICULTURE

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Vines under snow on Surrey's South Downs. Soon to be a sight of the past?

The impact of climate change on viticulture has been considered widely around the World in general and North America in particular. Viticulture occurs between the 10 and 20 degree C. average annual global isotherms. A poleward shift of winelands is taking place. Vineyards close to the former 20 degree C. isotherm being abandoned, or replanted at higher altitudes. New vineyards are being planted further towards the poles in response to the polar drift of the 10 degree C. isotherm. In 2001 the UN's Intergovernmental Panel on Climate Change predicted a global temperature increase within a range of 1.4-5.80C. This was revised in 2007 to an increase of between 1.1-6.4 degrees C. The 2007 IPCC report concluded that global warming is anthropogenic, and largely caused by burning fossil fuels. The Kyoto and other international conferences have failed to agree to a World-wide dramatic decrease of green house gas emissions.

In the northern hemisphere the 10 degree C. isotherm traverses central Britain. In such marginal winelands the interplay of climate with geology is all important, controlling the landscape within which a vineyard shelters, and the soil in which it grows.

A recent study, summarised in Figure 1, showed how the northern limit of British viticulture has migrated to and fro correlative with temperature over the last two millennia.

The Past

But to begin at the beginning: fossilized remains of vines have been found in the London Clay that was deposited across south eastern England some 50 million years ago when the climate was much warmer than today. Temperature has gradually cooled ever since, with the Earth entering an Ice Age some 2 million years ago. Temperature fluctuations during this

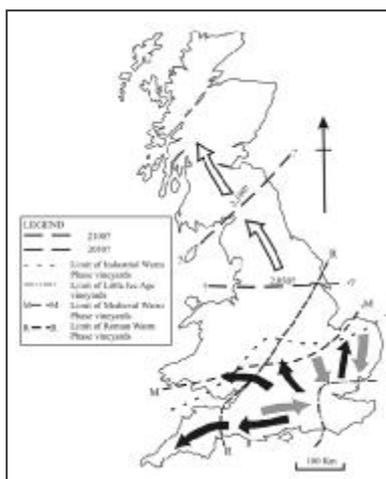
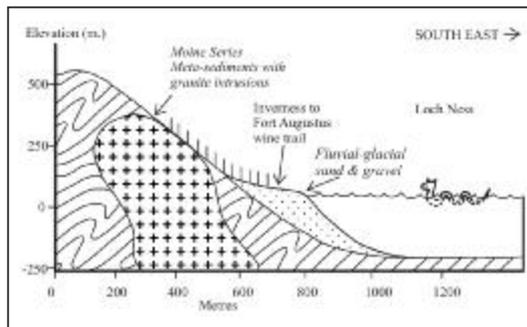


FIGURE 1. Map showing the to and fro migration of the northern limit of British viticulture since Roman times.



Scientists predict that the south facing banks of Loch Ness will be suitable for viticulture by 2080.

The North shore of Loch Ness may be one of the prime vineyards of the Cotes d'Ecosse in the 22nd century, with geology similar to the winelands of the Cape of Good Hope, a sunny south-east aspect and water at the foot of the slope to reflect the sun's rays up into the vines.



period have resulting in alternating glacial and interglacial episodes. Vines were absent from Britain during the glacial advances, but reoccupied Britain during each warm interglacial. Vine pips and pollen some 250,000 years old have been found in interglacial sediments in Suffolk. The first evidence of viticulture dates back to the Neolithic period in 2,700BC, though there is no evidence that viticulture lead to vinification. The later Iron Age Celts, however, were described by contemporary Roman writers as heroic wine drinkers; a view amply corroborated by abandoned wine amphorae and drinking vessels in late Iron Age sites in general, and in high status graves in particular. There is no evidence of wine making in Britain before the Roman Conquest. A number of supposed Roman vineyards have been identified across southern England. Many of these are dubious. There is, however, sound evidence of viticulture as far north

as Thoresby in Lincolnshire. The best documented Roman vineyard is at Wollaston in the valley of the River Nene where over 27 acres (11 hectares) of vineyard have been excavated. This was viticulture on an industrial scale. The area has been described as the Roman Cotes de Northants. This was probably producing 'vin de pays' for the legionnaires stationed in York and elsewhere. It is generally held that the temperature in Britain during the period of Roman rule may have been warmer than today.

Temperature dropped as the Roman Empire collapsed, perhaps the two are linked. In the Dark Ages there is no evidence of viticulture in Britain until the end of the Saxon Period. Temperature began to rise with the Norman Conquest, and northern Europe entered the Medieval Warm Period. The Domesday Book (1086-7) gives a detailed account of early Norman vineyards.