b27 Chronology of climatic change during the last deglaciation of the Ice Age < Younger Dryas >

> *Dryas octopetala*, the small but beautiful plant which, through the abundance of its resistant leaves, in European late-glacial deposits, named the cold periods of the Late Glacial in the pioneer works of Scandinavian Quaternary geologists. —Svante Björck.[1]

> The Mountain Avens (*Dryas octopetala*, Linn.) is a small plant, 2 to 3 inches high, distinguished from all other plants of the order *Rosaceae* by its oblong deeply-cut leaves, [with green upper surfaces and white] woolly down beneath, and by its large, handsome, anemone-like, white flowers, which have eight petals. It blooms in the spring. It is not uncommon in the mountainous parts of the British Isles, especially on limestone.
> — Mrs. M. Grieve.[2]

The distribution of vegetation in the modern day (MOD) is in great contrast to its distribution during the last glacial maximum (LGM).

During the last two centuries, minor fluctuations of moisture in tropical Africa have had a positive correlation with cooler climatic anomalies in higher latitudes. But larger, and longer term, moisture fluctuations in the African semiarid tropics and the mid-latitudes have a negative correlation. This information is from isotopic dating of lake levels, alluvial formations, pollen spectra, and the Nile flood levels recorded by floodplain aggradation (whence, Herodotus perceived, Egypt is the "gift of the Nile"[3]). Also, prior to 3000 BC, significantly higher Nile discharge and, in tropical Africa, the highest lake levels coincide with times of mountain glacial recessions in Europe.[4]

Deglaciation of the world, to the extent of the yet persisting ice sheets, was by 6000 years ago.

In Northern Europe, Holocene warming has allowed taiga (conifer-dominated boreal forest) to establish. Earlier, the warming was interrupted by the Younger Dryas which was a sever cold snap named for when that forest was replaced by herbaceous plants such as *Dryas,* which thrives on glacial *tundra* (a Sami word).[6] North American climate also included a Younger Dryas (possibly a worldwide phenomenon)[5] that ended 11,800 BP and began 12,675 ±25 vyr BP (varves in lakes in northern Europe, and $\delta^{18}O$ in Greenland GRIP ice core).[7] Earlier, had been a fluctuating warm spell that in North America included the Killarney Oscillation, a time of intense cold of 250 years, about 13,000 BP).[8]

This last deglaciation of the Ice Age (End Late Wisconsin) began 16,000 YBP (*see* Topic *k8*). At that time, summer solar radiation levels were higher than at present but, even so, world climates did not steadily warm.

The End Late Wisconsin was a time of great climate swings. Evidence of these was first obtained from the vegetation record in European terrestrial sediments. The named European events going back are: Younger Dryas (cold), Allerød (warm), Older Dryas (cold), Bølling (warm), Oldest Dryas (cold). Matching temperature oscillations can be read from Greenland ice cores (*see* Topic *b32*). Times of intense cold had a possible origin in a reduction or cessation of deepwater production in the northern Atlantic and a concurrent lessening of the heat flux from low latitudes.

Larry Benson has found that end Late Wisconsin European cold times are highly correlatable with arid times in western North America. The persistence of the massive Laurentide ice sheet (though dwindling in area) resulted, near it, in steep climatic temperature gradients. Climate simulations indicate that the drought times in western North America were when less humid air blew in from a cooler north Pacific.[9] ❑