THE QUESTION OF CLIMATIC STABILITY IN AMERICA BEFORE 1900

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Abstract. Belief that regional climates had significantly changed in historic times, possibly as a result of human activities, is firmly established in the Western tradition. Europe itself was believed to have undergone such changes, especially a warming trend, since ancient times. It was also widely believed that the European colonization of North America would duplicate many of the changes that had occurred in Europe, including the climatic changes that were supposed to have taken place. In the New World, it was at first believed that climatic change was occurring, as a result of human settlement and land use changes, but these views gave way to the idea of climatic stability. The first extensive compilations of reliable North American precipitation and temperature data in the latter part of the nineteenth century seemed to support the notion of stable climates. Ideas relating to macroclimatic change and stability that were entertained in America before 1900, mainly between 1770 and 1870, are examined.

The idea that regional climates had substantially changed in historic times, possibly as a result of man's activities, is an antique notion in the Western tradition. Such ideas had widespread currency in late medieval and early modern times. Europe was believed to have undergone such climatic changes, specifically a warming trend since ancient times. Many observers believed that the United States in its early years would provide a model of climatic change that was somehow related to the spread of human settlement. Such views gained wide credence in America. However, about the middle of the nineteenth century the view increasingly prevailed that the climate was completely stable and had long been so. In the later twentieth century the idea of climatic stability has been entirely rejected and much interest centers around the matter of reconstruction of past climates and predicting future trends. This paper examines the ideas relating to macroclimatic change and stability that were entertained in America before 1900, mainly between 1770 and 1870.

Speculation on the subject of climate change in the Western world goes back at least to Classical times. Theophrastus (c. 272-c. 287 B.C.), Pliny the Elder (23-79 A.D.), and Columella (fl. 1st cent. A.D.), for example, all made reference to the subject of climatic change. Climatic changes were usually seen as part of a widespread warming trend commonly related to land use, especially the clearing of extensive forests. Among the more important early writers who addressed the subject of climate change were St. Albertus Magnus, the thirteenth century scholastic philosopher, John Evelyn (1620-1706), the English diarist and writer on forestry and other topics, the Abbé Jean-Baptiste Dubos (1670-1742), the historian, the Comte de Buffon (1707-88), the naturalist, David Hume...
Quite possibly the first reference to a supposed change in the climate of the New World is contained in one of the earliest accounts of the infant American colonies of England. This work, entitled *New England’s Prospect* and published in 1634, was by William Wood (fl. 1629-35), and was based on nearly four years first-hand observations. Wood described the climate of New England as being generally suitable for the English and suggested that in the short time since colonization began the precipitation regime had changed significantly. Thus:

In former times the Raine came seldome, but very violently, continuing his drops, (which were great and many) sometimes foure and twenty hours together; sometimes eight and fourty, which watered the ground for a long time after; but of late the Seasons be much altered, the raine comming oftner, but more moderately, with less thunder and lightenings, and suddane gusts of winde.  

According to this account the climate was moderating, at least in the important area of rain and thunderstorms.

While the preceding statement was doubtless little more than a casually taken impression, the narrative of another European early visitor to the New World clearly suggests an awareness of the matter of climate change. This visitor was Peter Kalm (1716-79), a Swedish botanist and agriculturalist, and his diary written in 1749 recorded his questioning the old inhabitants of New Jersey as to whether or not they had experienced a change of climate during their residence in the colony. Kalm reported that his elderly informants had “all unanimously” stated that in former times the winters had begun earlier, and produced more snow, than at the time of questioning. Most of Kalm’s aged informants were also of the opinion that springtime weather had formerly come later and that it was rainier in past times than at present. All of this writer’s sources agreed that “the weather was not by far so inconstant, when they were young, as it is now.”

Kalm also visited Canada and noted that similar perceptions were prevalent among the old people of Quebec. The Swedish scientist reported that according to the recollections of the “old folk of this country” the “corn” grown there formerly ripened imperfectly and late. However, “since the woods have been sufficiently cleared, the beams of sun have more room to operate, and the corn ripens sooner than before.”

The question of climate change in the American colonies was first systematically examined by a man of science in a paper read before the American Philosophical Society, in Philadelphia, in 1770, by Hugh Williamson (1735-1819). There is no evidence to connect Kalm’s earlier remarks on this subject with the Williamson paper, although such a connection is possible since Kalm published three volumes of his American diaries in Swedish in 1753, 1756, and 1761. The books quickly became popular in Europe, and German and French translations appeared soon after the Swedish edition. An English translation of Kalm’s narrative appeared in two volumes, in 1770 and 1771.

Williamson was a medical doctor, as were many pioneer climatologists (especially in America), and his short paper was entitled “An attempt to account for the Change of Climate, which has been observed in the Middle Colonies in North-America.” It began with the declaration that persons of long residence in Pennsylvania and nearby have