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DENDROCHRONOLOGY OF BRISTLECONE PINE: A PROGRESS REPORT

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ABSTRACT. Dendrochronological studies of bristlecone pine, Pinus longaeva, have produced a continuous tree-ring sequence back to 6700 BC for the White Mountains of California and to 3258 BC for east-central Nevada.

Dendrochronological studies of bristlecone pine, Pinus longaeva, at 10,000 feet in the White Mountains of east-central California, have resulted in the establishment of a continuous tree-ring sequence back to 6700 BC, a total of 8681 years. This represents a 1576-year extension of the chronology since it was last published (Ferguson, 1969;1970).

Given the quality and length of series of specimens that have recently been dated in the 5500-6500 BC range, we are cautiously optimistic that the chronology may eventually reach back at least 10,000 years. This thought is buttressed by the presence of a 500-year "floating" sequence in the range of 9000 years BP (Ferguson, 1968). Current ^{14}C analysis seems to indicate that another remnant, collected in 1981, again with ca 500 rings, may be over 10,000 years old (H N Michael, pers commun, 1982). Continuing tree-ring and ^{14}C studies will further define the temporal relationship of these two specimens.

One other long bristlecone-pine chronology was recently developed. Collections at a site in the White Pine Range, east-central Nevada, have provided excellent material for a chronology back to 3258 BC, a total of 5238 years. This provides the second longest continuous record of isotopic and paleoclimatic variation at the lower, rainfall dependent range of the species.

The historic development of the bristlecone-pine project, a general overview of its relation to other scientific activity and a summary of the inventory of prepared samples was recently presented by Ferguson (1979). The primary focus of the project -- to provide dendrochronologically-dated decade samples for an interlaboratory calibration of the ^{14}C time scale (Klein et al, 1982) -- continues as bulk material for selected time periods becomes available.

Another focus of the project is to attempt paleoclimatic inference with the long bristlecone-pine tree-ring series (Ferguson and Graybill, 1981). The primary climatic signal that can be isolated in both the California and Nevada series is annual moisture variability. Current efforts are directed at calibration of the tree-ring series with instrumented climatic series.

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