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A Science Service Feature

? WHY THE WEATHER ?

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TREE RINGS AND WEATHER CYLCES

When a big tree is cut down, children like to count the rings on the stump to see how old the tree was. Usually the wood is made up of alternating rings of light, porous spring wood and denser summer wood. But the rings show more than the age of the tree. Some of the rings are wide, some much narrower. The wide rings represent seasons when the tree flourished and grew rapidly, the narrow rings represent the lean years. In most places tree growth depends on both temperature and rainfall. In a dry climate like Arizona, however, rainfall is the principal control. Prof. A. E. Douglass has found that trees growing on uplands where they have the utmost difficulty in getting water become exceedingly sensitive to differences in rainfall. In such trees, rings may vary from several millimeters across to microscopic proportions. In the driest seasons rings are occasionally absent, in all but a fraction of the circuit. By making certain allowances for conservation of moisture he found he could estimate rainfall of previous years from the trees with an accuracy of 85 per cent.

Long weather records obtained from trees show very clearly the rhythm of the 11 year sunspot cycle. Through the ring records it is even possible to identify different years in timber used for building and to date accurately remains of Indian pueblos. Firs in Oregon go back to 1710, Vermont hemlocks to about 1650 and Arizona pines to 1400. But the Sequoias of California greatly surpass these trees in antiquity, carrying our records back over 3,000 years.

(Tomorrow: Changes of Climate)

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