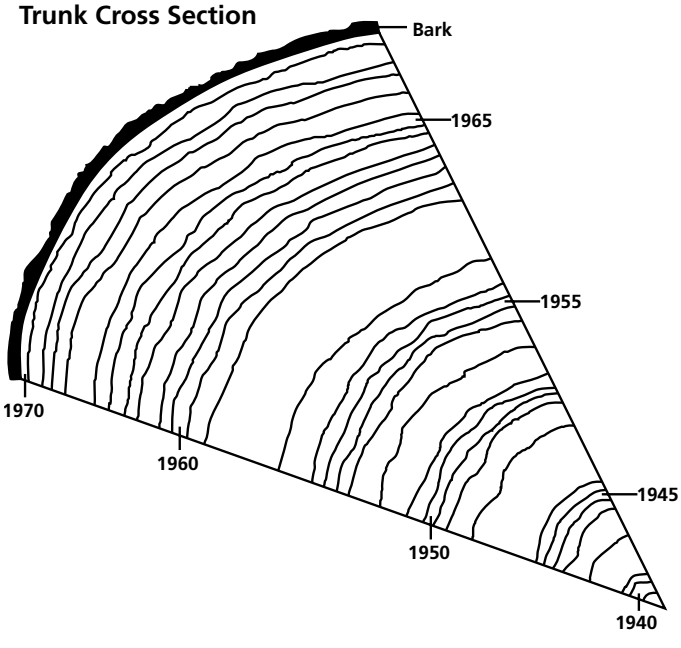
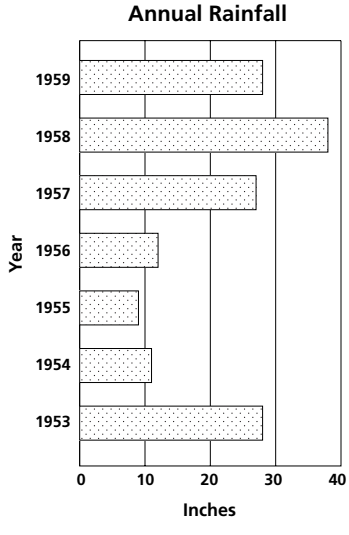
Geography from Trees

A tree grows by adding a new outer layer of tissue each year. These layers look like rings in a cross section of its trunk. The yearly growth of a tree depends on the amount of sunlight and water it gets. In years with plenty of water and sunlight, the tree can grow more than in years of little water or less sunlight. These growth differences show up in the widths of the rings. By examining tree rings, scientists can look for evidence of droughts and other climate changes. Even earthquakes, floods, and volcanic eruptions can sometimes be detected in tree rings.

Scientists insert a device into a tree trunk that removes a small section. This process does not damage the tree. They can date all the rings in the sample because they know that the outer ring is the current year. Very old or dead trees can provide information about geographic events hundreds of years ago. The study of tree rings is called dendrochronology. Dendrochronology is a valuable tool for geographers. You can practice by studying the graph and the cross section of a tree trunk. Then answer the questions on the following page.





1. According to the information on the trunk cross-section, what was the first year in this tree's life? In what year did this tree die?

2. In what two years during this tree's lifetime did this region have the most rainfall?

3. What was the longest dry spell this region experienced during the tree's life? Between what years did this dry period occur?

4. What pattern in annual rainfall do the rings show this region experienced in the first 20 years of this tree's life?

5. According to the tree rings, in what other six-year period was this region's rainfall most like the rainfall that is shown on the graph for 1953–1958? Explain how you know.

6. The graph indicates that 28 inches of rain fell in 1959. Yet the rings show that it was a poor growth year for this tree. What other climate or weather factors might have existed in this region in 1959 that could explain this tree's poor growth?

7. Good weather records do not exist for the United States before the late 1800s. Some other countries have only recently begun to keep such records. How can dendrochronology help geographers learn about the weather in countries when records did not exist?