

C  
R  
O  
W  
N  
  
T  
R  
U  
N  
K  
  
R  
O  
O  
T  
S

Leafy trees have broad crowns to gather sunlight and allow air to circulate.

Conifers have tapered crowns to withstand winds, cold and heavy snow.

The tree's new growth is from materials made in the leaves using the power of the sun.

The trunk is a pipeline connecting the roots to the leaves.

Foresters measure a tree by its diameter at breast height.

**SOIL GRAINS**  
Tiny root hairs only .01mm across live only for a few days.

**DECIDUOUS:** Having broad leaves, shed in winter.

**UPPER SIDE**  
Has waxy waterproof surface turned to collect solar energy.

**Veins**

**UNDER SIDE**  
Has a lighter surface with breathing holes (stomata) to absorb carbon dioxide gas and breathe out oxygen and water vapour. (transpiration)

**CONIFEROUS:** Having cones and needle-like leaves.

The tree can open or close its breathing pores which are spaced along the needles.

Because the narrow stiff needles expose far less surface to the air, the tree can survive strong winds, low or high temperatures, and the lack of water from drought or frozen ground.

A single vein runs inside each needle.

**COTTONWOOD SEED**

**OAK ACORN**

**BIRCH NUT WITH WINGS**

**A CONE IS A SEED HOLDER.**

**WING**

**SEED**

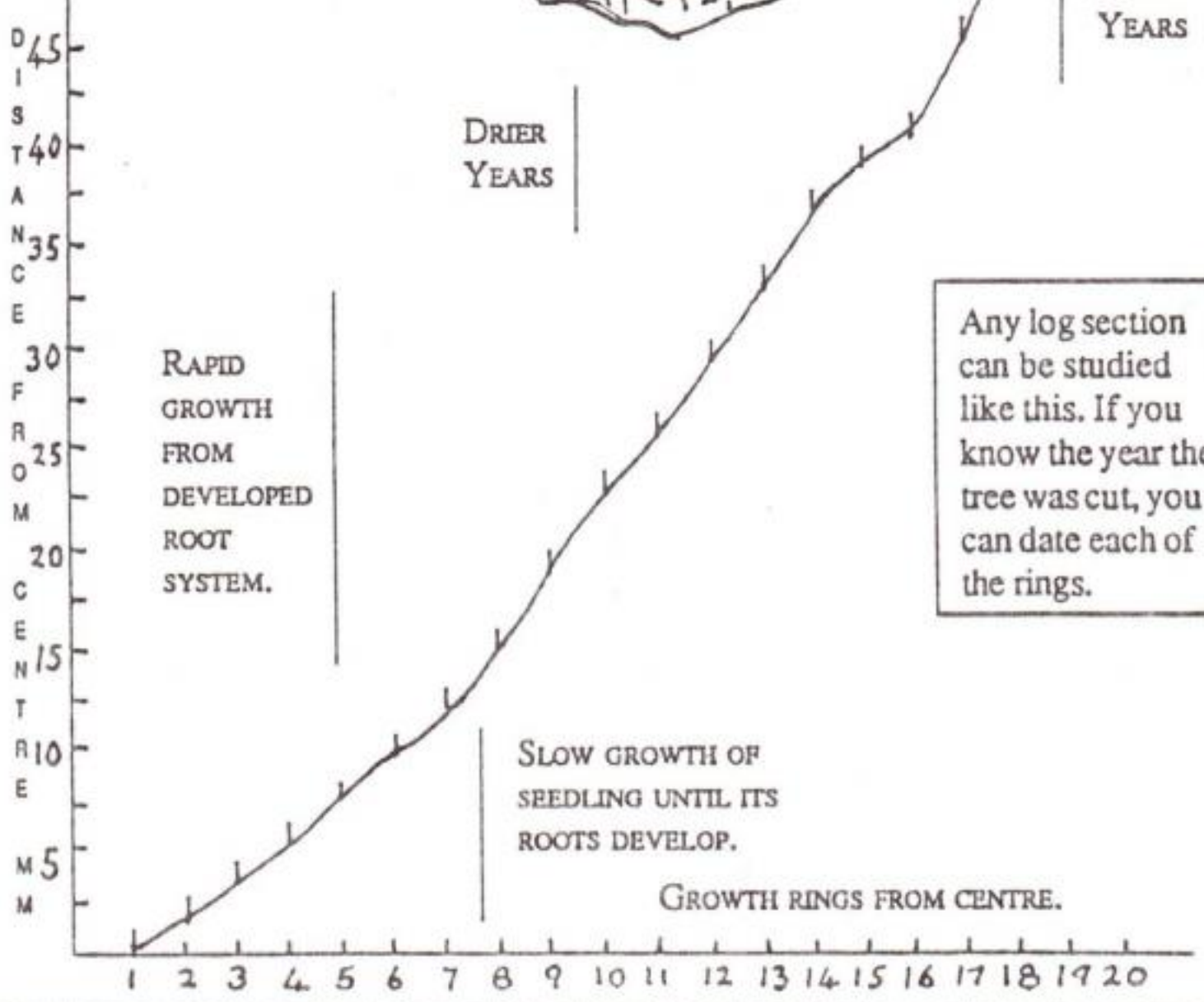
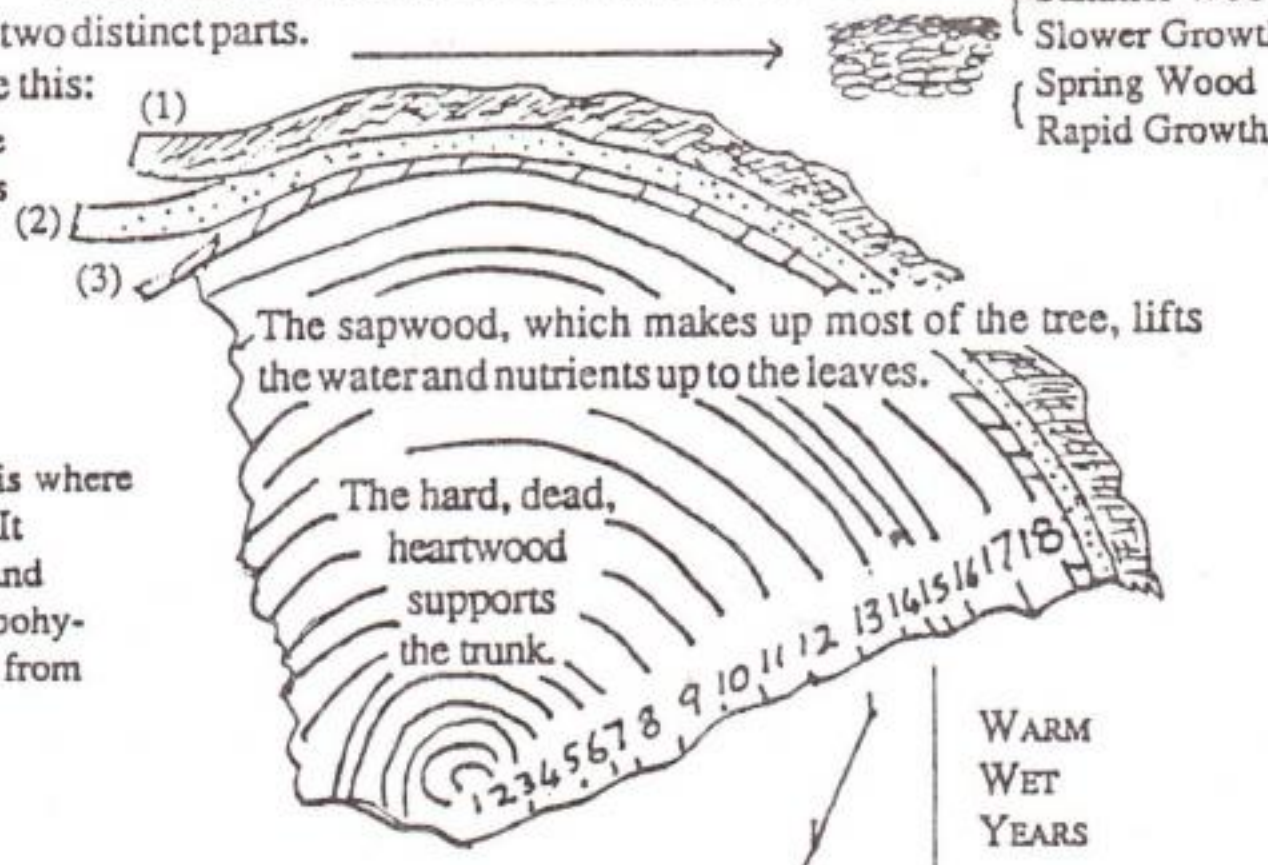
ALL TREE SEEDS ARE DESIGNED TO BE SPREAD EITHER BY THE WIND OR ANIMALS.

**HOW A TREE RECORDS ITS OWN LIFE HISTORY.**

EACH YEAR A TREE MAKES NEW LAYERS OF CELLS.

Every growth ring has two distinct parts. The cells in it look like this:

- (1) The outer bark is the tree's dead skin and acts like a suit of armour.
- (2) The inner bark is cork. It insulates and carries food from the crown.
- (3) The cambium layer is where the growth takes place. It makes both inner bark and sapwood cells from carbohydrate carried down to it from the leaves.



Any log section can be studied like this. If you know the year the tree was cut, you can date each of the rings.

**SPREADING ROOTS**  
About as much of a tree is below ground as above.

**TAP ROOT**