

resilience (springiness) of the timber, the wood is lighter in weight, it is easier to work with the saw and other tools, it maintains its size and it is not so liable to split, twist or warp (distort). The process of removing the moisture is called *seasoning* or *maturing*. This is accomplished by either (a) natural or (b) artificial means. In recent years the latter methods have been considerably improved and extensively employed; natural processes are not now so frequently adopted owing to the relatively longer period required.

(a) *Natural Seasoning*.—Immediately after felling the branches are removed, the trees are cross-cut into *logs* and the bark is removed. If the logs are of softwood, they are shaped by machine sawing to a square in cross-section (called *baulks*) and stacked (as shown at c, Fig. 29) under cover to allow the air circulating round them to remove much of the moisture content. Hardwood trees are usually sawn by machinery along their length into *planks* (pieces from 2 to 6-in. thick and at least 11-in. wide) and stacked with cross-lags (pieces of wood about  $\frac{1}{2}$ -in. thick) between, as shown at d, Fig. 29. Thin pieces of wood (as shown at e) are nailed to the end of each plank to prevent the timber splitting during the drying process. This is known as *Dry Natural Seasoning*, and the time occupied depends upon the size and character of the timber. Thus, *softwood* boards, 1-in. thick, may take two months to season and 2-in. thick planks four months; *hardwood* of the same thickness may take about three times as long to season.

The time occupied in seasoning is much reduced if the timber is subjected to *Water Natural Seasoning*. By this method, the logs may be floated down a

river to the sawmill or they may be placed in the river, totally submerged with the butt (thick) ends facing upstream, left for a fortnight to allow the water during its passage through the pores to eliminate much of the sap, when they are removed, sawn and stacked as shown at c.

(b) *Artificial Seasoning*.—By this method the time taken to season timber varies from approximately one week to a fortnight. This process is carried out in kilns of which there are several types. One form of kiln consists of a long chamber, about 8-ft. wide and 10-ft. high. The timbers, which should be of the same thickness, are carefully piled and sticked (cross-lagged) on trucks which run on rails extending the full length of the kiln. Hot air is circulated amongst the timber by means of fans, the air being heated by passing it over coils of steam pipes. The temperature of the air and its rate of flow vary with the size and class of wood. The humidity (moisture content of the air) of the kiln during the seasoning is rigidly controlled; if it is too low, it is at once raised by the admission of steam.

It is important to note that the *whole* of the moisture content (abbreviated to "m.c.") is not removed from the timber when seasoned. A certain amount of moisture is allowed to remain. Thus, for internal work (as for floor boards, doors and panelling), the timber is allowed to remain in the kiln until the moisture content is reduced to 12 per cent.; the maximum moisture content for good-class carpenters' work is 20 per cent. If timber is used in a position where the humidity of the atmosphere is in excess of that in the timber, the latter will absorb moisture from its surroundings and swelling will result. Conversely, if the timber is insufficiently seasoned (*i.e.*, contains an excess of moisture), it will, if fixed in a very dry position, lose a certain amount of moisture and will shrink. Therefore if movement of the timber is to be kept to a minimum, the moisture content should approximate closely

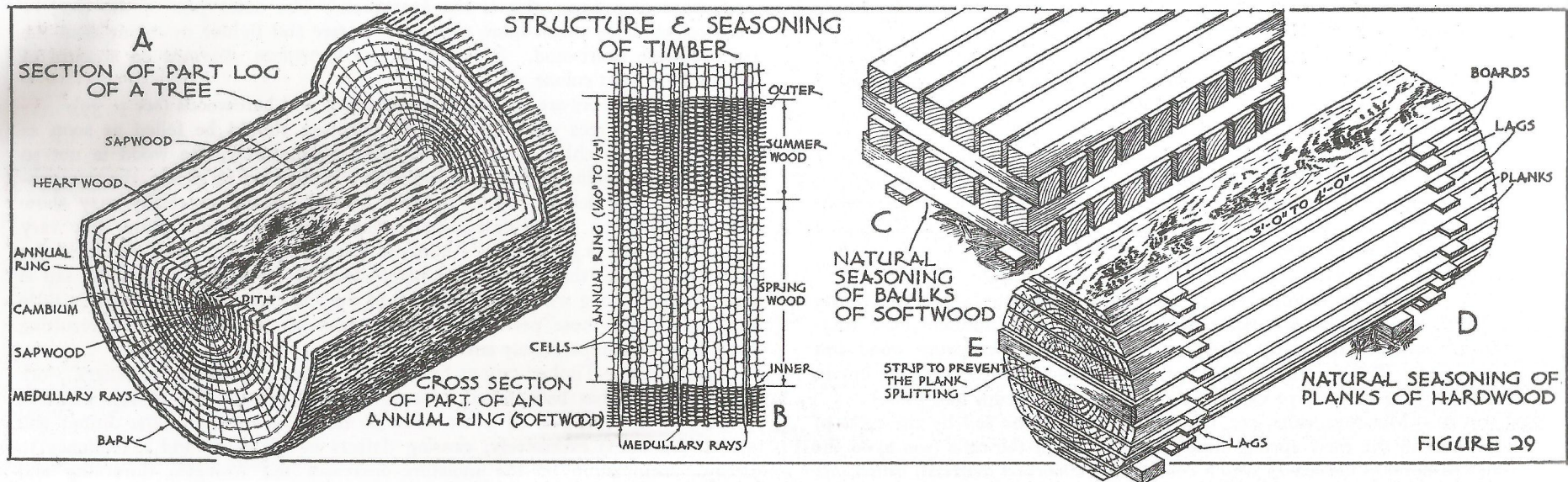


FIGURE 29