

Supposing it to be true, that all our forest trees are sustained only by the circulation carried on immediately under their bark,

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disturbing it. *Third*, the origin of the wood is in some way intimately connected with the action of the leaves. It has long been known, that the diameter of a stem depends very much upon the number of the leaves which it bears; and that the larger the number of leaves developed upon a stem, the greater will be its diameter, and the more rapid its growth. And also, that the largest quantity of wood is always found on that side of a stem which develops most leaves. But had we only these facts, on which to base a judgment, we might hesitate which to consider the cause and which the effect; whether to believe that the luxuriance of the stem arose from the increased number of the leaves, or the increased number of leaves from the luxuriance of the stem. This question, however, has been determined by direct experiment. Mr. Knight stripped off the leaves from the upper portion of a young shoot; as the consequence, the shoot died as far down as the leaves were removed, whilst below that point, it flourished. He afterwards insulated a single leaf, by removing a ring of bark, at some distance above the point at which it was inserted into the stem, and another at an equal distance below that point. In the course of the summer a perceptible increase in the wood took place above the leaf, but none below it. In another instance, he removed a narrow ring of bark from the lower part of a growing stem; the stem afterwards increased sensibly in diameter down to this ring; but not at all between the ring and the leaf next below it. From these and similar facts he has inferred, that the matter of which the wood is formed, is elaborated in the leaves and sent downwards. *Fourth*, the portion of wood formed each year, is entirely independent of, and distinct from, that of every other year; and when once formed, undergoes no change, except the slight change which takes place when it is converted from sapwood into heartwood. In confirmation of this, many curious facts may be mentioned. On what are called 'line trees,' in the west, certain marks are made when the land is first divided off into lots. This is done by striking with an axe, so as to cut through the bark and two or three of the outer layers of the wood. If one of those trees be examined, say twenty years after the marks were made, no traces of them will be discovered on the outside of the bark; nor, if we cut into the wood, will we find any on the nineteen outer layers; whilst we will find all the marks perfect in the twentieth layer, in which they were originally made; thus establishing the fact, that that layer has remained unaltered since its first formation, and that all the outer layers have been formed entirely independent of it. Good, in his *Book of Nature*, states, that in England, dates of very remote national eras, and the initials of monarchs who flourished in early times, have been found stamped in the very heart of the timber. M. Klein states, that in the year 1727, a long series of letters were discovered in the trunk of a full grown beech, near Dantzic. The letters were conspicuous in a layer about half way between the axis and the bark of the stem, whilst no traces of them could be discovered, either in the layers within, or on those without it. The same author mentions several other facts of the same kind. In one instance, the image of a thief hanging from a gibbet, was discovered in the timber of a beech tree, apparently drawn by nature's own pencil. In another tree, the figure of a crucified man was found in similar circumstances; and in another, a chalice, with a sword perpendicularly erect, sustaining a crown on its point. Such marks were formerly attributed to miraculous intervention, or regarded as miraculous sports of nature; and on this account, were preserved with peculiar care. When rightly understood, they place the truth of the above statement beyond a doubt.—*Essay on Vegetable Physiology, by Armstrong, Prof., &c., Washington, Virginia, chap. 7; The Farmers' Register, by Ruffin, vol. 7, No. 4.*