leaves? They are situated some distance apart, and though, as shown in the table, they are small in comparison to the diameter of the stem, still they attain a size of 15 square inches, or even more. Now, if they were of the same form as the ordinary pear leaf, they would be about 7 inches long by 2–3 in breadth. The mountain ash, as we know, lives in mountainous and exposed localities, and such a leaf would be unsuitable to withstand the force of the wind in such situations. From this point of view, the division into leaflets seems a manifest advantage.

Another point is the length of the internode. In such trees as the beech, elm, hornbeam, etc., the distance from bud to bud varies comparatively little, and bears a tolerably close relation to the size of the leaf. In the sycamore, maple, etc., on the contrary, the length varies greatly. Now, if instead of looking merely at a single leaf, we consider the whole bough of any tree, we shall, I think, see the reason of the differences of form.

Let us begin, for instance, with the common lime. The leaf-stalks arranged at an angle of about 40° with the branch, and the upper surfaces of the leaves are in the same plane with it. The result is that they are admirably adapted to secure the maximum of light and air. They are 4½ inches long, and very nearly as broad. The distance between the two leaves on each side is also just 4½ inches, so that they exactly fill up the interval. In Tilia parvifolia the arrangement is similar, but leaves and internodes are both less, the leaves, say 1½ inch, and the internodes .6.

In the nut (corylus), the internodes are longer and the leaves correspondingly broader. In the elm (ulmus), the ordinary branches have leaves resembling, though rather longer than, those of beech; but in vigorous shoots the internodes become longer and the leaves correspondingly broader and larger, so that they come nearly to resemble those of the nut.

In the maples, sycamores, and horse-chestnuts, we have a totally different type of arrangement. The leaves are placed at right angles to the axis of the branch instead of pinnate veins. In this group the mode of growth is somewhat stiff;