

number of tubes like the tubes of plants, some are closed at the end, some open, some are called sieve tubes, others have a kind of beard, others again have lining and are thick and hard ; some have spiral fibres running through them like a corkscrew but much more delicate, yes and infinitely more delicate than the spider's web.

You recollect what an apple leaf is like. There is a little stalk by which it is attached to the tree and this stalk seems to be projected into the leaf and it runs away up towards the tip, but there are branches growing off it like the branches of a tree. All this we call the skeleton of the leaf. You see a decayed leaf in the ditch and it gets skeletonized, the network has worn away and it consists of what ? Those tubular, fibrous tissues ; they give strength to the body of the plant just as our bones. What is the use of our bones ? To form a framework for the attachment of the various other parts, and we have an internal framework just like the plant. The framework is necessary for the plant, if of any size. It begins at the root and extends up through the stem and up into every leaf. What is a plant then ? It simply consists of this framework with other tissues spread over it. Into the structure of the stem and root I would enter to-night but it would take too much time to do so, and I must therefore confine myself to one or two points. The framework consists of those fibres, but those fibres are a large extent inert like our bones. We do not see any great change in them, but in the other parts we see constant changes going on. Now if we take one of the soft cells of a plant and examine it what do we find ? A little bag which if examined under the most powerful of microscopes may not reveal any holes and yet water passes through it, this power it has in common with animal cells. We find certain things inside the cell, for instance, a remarkable substance which is called a protoplasm. What has that to do with apple trees ? What is protoplasm ? If there is anything connected with a plant that is abused it is this protoplasm. You will find references to it in all kinds of literature, and people have become afraid of the word. I wish I could explain how simple a matter of mere fact it is. It consists of mere mucus or granular matter. If a cell is active it contains this granular matter, of what it is we know but little. We know it has no definite chemical composition, that it is a mixture, and protoplasm is simply a name given to a combination of things in the cell, and this particular thing has forms of motion. I