

is now good reason to believe that both these are merely varieties of the common fungi of which we have been speaking, *Penicellium* and *Aspergillus*. For identical growths have been found by Mr. Stephens, on bones from South America; By Dr. Fox on the human subject, in a case of skin disease; and by myself in a phial containing crystals of cholesterine.

Let us now enquire into the power which fungi have of generating disease. Their influence upon plants has never been doubted—Firstly, because their ravages are too well known, and too serious, to admit of dispute; and secondly, because their malific agency upon structures of a low organization, allows of more easy demonstration, than when highly organized and sensitive tissues are the seat of their operation, and when more various forces and conditions are to be considered.

It is no difficult matter to show that dry-rot as it is termed, would be a comparatively slow process, were it not that the fungus is present, to insinuate itself amongst the fibres of the wood, to give admission to air, and to yield oxygen, which hastens the already commenced decomposition; while at the same time the living cells abstract chemical elements from the woody fibre, and fan into activity the *eremacausis* or slow combustion of the decaying tissue. Equally obvious is the fact that without yeast, wort would undergo but little fermentation, and that if all vegetable organisms were excluded, no proper fermentation would result; for even in the case of wine which is conducted without the artificial aid of yeast, I have found that this is really the source of the fermentation.

We may assume then, as a fact, which few will deny, that a living vegetable parasite upon other vegetable cells, must excite in them a chemical action, equivalent to fermentation, for it cannot grow without so doing; and that even supposing the cells themselves were able to resist this action, the juices of the plant not possessed of the same vital resistance, must succumb to its influence. Whether this alone be the real secret of its power, affects not the question. If the juices are decomposed the cells must suffer, and the morbid agency is at once apparent. But there is another point in which their action is not unimportant, viz., the power which fungi have of inserting themselves amongst the cells and tissues. Physiologists, and especially medical writers, overlook this fact, that a cell confined in a limited space, and at the same time undergoing development, must expand in some direction, and the force thus generated is almost incredible. Many of you have no doubt seen a strong wall pushed down by the growth of a tree; that is, by the expansion of soft and otherwise yielding cells. But perhaps a more impressive fact is, that simple cellular fungi, growing under large stones, have raised them from their beds to the height of some inches, even when the stones were several hundred pounds in weight; and yet so soft is the structure of the plant that it might be crushed between the finger and thumb. Here is a power not to be ignored when discussing the influence of parasites. Let us see how it applies to the production of disease in animal tissues. Each individual cell, it must be borne in mind, possesses the same motor power, it is only their combined action which yields great results such as the above. Suppose then a single tube inserted into the skin and infringing upon a nerve fila-