SOME PECULIARITIES OF TREE GROWTH.

THE forest-lover and botanist can always find an abundance of vegetable curiosities that will escape the observation of less interested persons. While each of nature's kingdom has many things to attract and hold the undivided attention of its devotees, the student of botany, whether an amateur or a professional, will yield nothing in behalf of the vegetable kingdom. Especially is this true of him who makes a study of forestry. The forest-lover makes friends and companions of trees. He learns their moods, their habits and peculiarities of growth, while they in turn teach him wonderful lessons.

There is a beneficence about a forest that must always have its effect upon dwellers within its influence, where there is companionship in single trees, if familiar to one from day to day.

Even the brute creation acknowledges the former, the highest types being found in timber lands; only the lower ones approaching the reptilian in form, being found as permanent denizens of the vast sandy or alkali treeless plains of either hemisphere. It might be claimed that the buffalo, the splendid game quadruped of the western world, was, in history, exception to this rule. But the real fact is that he reached his greatest perfection in those prairie sections which were interspersed with natural shelter belts of heavy timber, such as forest-lined rivers and creeks, or wooded ridges, that gave ample protection from the fierce sun of summer, or the fierce blasts of winter.

Forest peculiarities include a mass of interesting knowledge which is withheld from the general public. For instance, who among the non-professionals can explain why the deciduous growth follows the destruction of conifera? Or why certain species accompany one another? And yet these are common, and every-day facts.

The more one studies this subject the more interesting it becomes, and a few illustrations may serve to draw attention to it. There is a tree, habitant of the foothills of the mountain ranges of the Pacific Coast, called the madrona (Arbutus Menziesii, Pursh.), that is always in foliage, though not a conifer. The old leaves roll up into brown balls during the heat of the dry season, after which the new ones have nearly matured, after which they separate from the branch with a sharp report, like the cracking of fire-crackers, producing a rather startling effect upon the uninitiated traveller.

In addition this tree sheds bark early in the summer, previous to changing its foliage. At the proper time the bark splits from the ground up to the extreme points of the last year's growth on the minutest twigs, whence it rolls up and falls to the ground. At maturity the old bark is of a rich coffee color, and smooth and hard. The new bark presents a beautiful shade of dark pea green when first exposed, which darkens from day to day to maturity.

In the Sierra Nevada Mountains the flowering dogwood grows to the size of a respectable tree. In the eastern part of Amado county, Cal., at an elevation of 37,000 feet, at a bend in a road built to a lumbering camp and saw mill, there stands two such trees, about 16 inches in diameter at the ground, and about thirty inches apart. At the height of ten feet from the ground the trees are joined together by a regular Siamese union. At the points of junction the trees are fully 12 inches in diameter, and the connecting growth is upwards of five inches in diameter in the center, increasing largely toward each trunk. Examination shows that the trees have no connections at the roots, being two separate and distinct trees.

The location was a wild and unfrequented one, away from any trail, until the road was located less than five years ago. There is no appearance of two branches having been grafted together artificially, but there is every evidence of its being a simple freak of Dame nature herself.

Again, certain trees, like certain animals, become extinct in particular localities, without any apparent cause. This giant sequois of California will never be reproduced. They are the survival of a prehistoric age that could alone produce them, being the oldest living specimens of forest growth on the continent—older than large areas of the continent itself.

Certain trees are inimical to others, it being impossible to make them grow side by side, while on the other hand certain species exert a benign influence over others to such an extent as to almost necessitate their planting together, if the best results are desired.

Who can explain why the conifera as a rule (the sequois being an exception), can be propagated only by seeds, while a large majority of deciduous trees renew themselves from sprouts, from old roots, or can be propagated from slips?

Men, clearing a black ash swamp in Northen Michigan, discovered a white pine stump of great size, inside of which was a hemlock stump, also very large, and inside the hemlock two yellow cedars of good size, joined at the roots. The stump puller took the whole mass out together, when an examination showed that the shell of the white pine was still about 16 inches thick and sound, while the hemlock had a shell of over a foot in thickness, hard and sound, the cedars being sound with the exception of a small heart and each about one foot in diameter.

Computing the age of each from the number of rings in the shells, the pine must have been at least 1,500 years old when it ceased growing; the hemlock was fully 600 years old, and the cedars were 140 years old.

A reasonable allowance for an interim between the death of the pine and the seeding of the hemlock, and the death of the latter and the seeding of the cedar, makes it appear that the pine must have sprung from a seed more than 3,000 years ago.

This clashes with the theories of the geologists as the formation of that part of the State, which arises a question between them and the believers in the "ring" theory of annual growth.—Hardwood.

FORETHOUGHT VS. AFTERTHOUGHT.

By W. H. WAKEMAN.

IT is said of some men that their "foresight is hindsight" and their "forethought always comes afterward." This is not a very handsome expression, but it answers the purpose very well in describing the characters referred to. When one of these men is put in charge of a steam plant, there is trouble almost continually, and the plant is frequently shut down, that his hindsight may be made use of and his lack of forethought made prominent. Such a man never makes it his business to inspect the lacings in his main belt at short intervals to see that it is in good order, but allows it to run as long as possible, and when all the machines in the factory are running, thus bringing a heavy strain on the nearly worn out lacing, it fails and the whole factory is shut down for about an hour while a new lacing is put in; or perhaps a part of the lacing gives way first and the belt is thrown to one side of the pulley, is caught by the floor or wall and badly torn, making it necessary to get a new piece and put it in, and as the job must be done in a hurry, there is no time to properly scarf, cement and rivet it, so that it is laced on, and ever afterwards there are two lacings to care for instead of one. It does not really need to be a very large factory to make such a shut down cost as much as is paid the engineer for a week's work, consequently a man who watches such things and avoids the shut down saves his employer many dollars.

It is a good plan to draw in pieces of old lacing over the new simply to protect the lacing which holds the belt together from wear as it runs over the pulleys. These pieces will then wear out first and so give warning, when they may be renewed and the others kept intact.

Such a man as forms the subject of this article, does not remove small accumulations of sediment from his sight-feed oilers, but waits until the dirt is about half an inch deep in them and the oil passages choked up with it, and as the bearings are not oiled, hot boxes are the result. He is then not slow in applying some heroic remedy and boasting of his skill in curing the evil. The flange joints in his cast iron main steam pipe are leaking drops of water while his engine is shut down, but he has not foresight sufficient to enable him to know that unless they receive proper attention, the packings will be blown out and it will be necessary to shut down to renew them.

If the packing around his piston rod begins to leak, he simply screws up the nuts which hold the gland in place, and when it leaks again he repeats the process, but does not heed the warning that new packing is needed, until some morning after starting up he finds that he can no longer stop the hiss of steam in this way, consequently throughout the entire day, at each revolution of the engine it sounds as if it were about a hundred geese in the engine room, and visitors and employes are not slow to take note of it and rate him accordingly.

This man has an injector in his boiler room which formerly worked very well, but of late it will break occasionally, and frequently he finds it difficult to make it start as it should. This tells him that it is becoming coated with scale on the inside. He should have foresight to enable him to determine that in a short time it will become so filled up as to make it useless, but he lacks this most desirable qualification, and when his pump is being repaired the injector refuses to work and he can not feed his boilers. To cover up his blunder he advances the idea that no injector will last long anyway, and that they fail without giving warning, when the truth is that they do give such warning, but he either does not understand the story they tell, or is too indifferent to profit by it. It matters little which it is, as the result is the same in either case.

With a man in charge who lacks foresight, when the girth seams on the under side of his boilers commence to leak, he does not look ahead and calculate what the result will be if this leakage continues, but proceeds to calk up the leaky seams, and continues the same practice that caused the trouble in the first place. He can not foresee that if he fills a hot boiler with cold water, severe contraction will be the result, or that if he feeds cold water into the bottom of a boiler while under steam pressure, the cold water will settle to the bottom and cause the seams to leak.

His boiler is badly scaled and he introduces some scale resolvent to remove it, but does not possess sufficient foresight to enable him to see that if his remedy is of any value whatever, it will throw down a large quantity of scale which will lodge on the parts immediately over the fire and prevent the water from coming in contact with the iron, the consequence being burned plates and leaky seams.

If a small hole appears in the blow-off pipe, he puts a slip patch over it to stop the leak temporarily, but does not have forethought enough to show him that if corrosion has weakened the pipe in one place it soon will be in others; but when this pipe fails and his boiler room is filled with clouds of steam and the boiler is unceremoniously emptied of its contents, his afterthought has a chance to secure a prominent position.

If an oil agent offers him a commission on all of the oil that he buys of a certain kind, he repeats the old axiom that "a bird in the hand is worth two in the bush," without taking into consideration the fact that he has made a wrong application of it. He can not see into the future enough to discover that he will soon be no longer a free man, but will be under obligations to those from whom he has taken bribes, forgetting that all of these deals are brought to light sooner or later and always to the disadvantage of those who are concerned in them. The engineer who is capable of getting out of scrapes in short order, often passes as a hero, while the unassuming engineer who is thoughtful, and by his thoughtfulness keeps out of scrapes, attracts but little attention and frequently fails to get as much credit as is really his due. When he leaves a situation where he has had but little trouble, and where shut-downs were few and far between, and is replaced by a man whose forethought comes afterward, the difference is often plainly to be discerned without the aid of a magnifying glass.

There is one more point which I wish to mention, as follows: When a man takes charge of a steam plant, he should have foresight enough to study out the characteristics of his employer, know just what his ideas are as far as possible, and then govern himself accordingly. By this I do not mean that he should sacrifice any of his own opinions or ideas which are proven to be correct, for this is not at all necessary, but he should adapt himself to circumstances and by skillful management of affairs, secure the respect and confidence of his employers.