

POPULAR LECTURES.

Economy of the Vegetable Kingdom.

Thirtieth Lecture delivered before the University of Cal...

Our Timber Trees.

To the student, as well as to the practical man, the timber producing trees of the Pacific...

What thing of life can claim even half the antiquity of some of the trees now growing?

Thirty one centuries ago the Big Trees of California burst their seed coats and began their long reaching toward the skies...

Twelve Centuries Before Christ, When the names of which old Homer sung were still fresh in the memories of men...

Interesting as these inquiries are, I wish, to-night, to call your attention to another view of the matter. Trees, if usable, represent dollars and cents...

What Trees Furnish us with Timber? A convenient division of timber trees is into "soft wood" and "hard wood" varieties...

The Scotch pine, Pinus sylvestris, called also the Scotch fir, is a tree found in Europe and Northern Asia. It is a fine tree, growing best in the mountainous districts...

The white pine, Pinus strobus, called also Weymouth pine, is a native of the Northern United States. In Maine, Vermont, New Hampshire...

Its Uses are Almost Numberless. Yellow pine, Pinus australis, is found growing in the Southern Atlantic States, especially in Georgia and Florida...

The sugar pine, Pinus Lambertiana, of California, may be said to be the Western representative of the foregoing trees. It is botanically a very near relative of the white pine of the East...

sugar pine would be used for as many purposes as the white pine, but you are so fortunate as to have three or four others having different qualities...

The redwood tree, Sequoia sempervirens, is the great lumber producing tree of California. It is not a pine, but is more nearly a cypress...

A Former Gigantic Race of Trees, Which extended throughout the northern hemisphere, climatic and other changes having destroyed them long ago in all countries but California...

The Douglas spruce, Abies Douglasii, is a native of the Rocky Mountains, Sierra and California regions. A beautiful tree, it was long ago taken to Europe as an ornamental tree for the parks and gardens...

Oregon pine and Oregon fir are names applied to a very valuable timber brought to our market from Oregon and Northern California. The name pine is not properly applicable to this tree...

"Soft Wood Ships," As they are called on account of the lightness of their materials, sink less into the water under a given weight of cargo...

There are many other soft wood trees of this region which are now somewhat used, and which no doubt could be utilized if we knew more as to their strength, durability and other qualities...

No Tree on this Coast, Furnishes a timber which can exactly replace the wood of the tulip tree, the whitewood or yellow poplar of the Atlantic States...

Careful, Thoughtful Hands Planted, Perhaps two centuries ago. The live oak, Quercus virgens, of the Southern Atlantic States, is for American shipping what British oak is for England...

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Not only of the native species, but also of the European, which makes a rapid growth here, and of the black walnut, which, though not a rapid grower, can be made to do well...

greatest value being found when employed in sticks or pieces but little more than an inch in diameter. For axles and spokes of wagons and carriages...

The elms are found in great abundance throughout most of the States east of the great plains. Some of the species are quite valuable, though the liability to warp is a serious objection...

Here again we find, first a species in Europe, which is replaced in the Eastern States by the American white ash, a tall, majestic tree, producing a white, light, tough and durable timber...

The Maples of which there are many species, are divided into two groups—the hard maples and the soft maples, referring to the character of the wood. The hard maple, or as it is also known as the sugar maple of the Eastern States...

There are three timber trees peculiar to California which are well worth mentioning; they are the California Laurel, the Madrona and the Manzanita.

The California laurel (Oreodaphne Californica) is peculiar to this slope of the continent. Its wood is valuable, and no doubt when we have learned more fully how to use it, it will be of more value still...

Among the important woods of this coast not belonging to California, are those recently brought into use from Mexico. The most important one is what is known as Prima vera or white mahogany...

In order that the native woods of this coast may be of greatest use there is great need of Thorough and Exhaustive Tests, As to their strength, their durability and their working qualities...

I have thus thrown hastily together a few of the facts connected with this subject in order to call your attention to the sources of our timber supply—the kinds of woods we have, those we lack, and the need of a further development...

Trusting that the matter presented has not been altogether devoid of interest, that it may receive further thought from you, that you may help to develop this portion of California's resources, thereby adding to its wealth and its material prosperity...

It is safe to suppose, when herbivorous animals of any kind are found eating bones, etc., that their systems require something not supplied by their usual food. When sheep gnaw their wool, it indicates that they are suffering from the attacks of parasitic insects...

In the West, where the soil is new, the natural supposition would be that the food would contain the elements necessary to the support of all portions of the animal economy; and such is the fact, except in exceptional cases...

In any case, the sheep should be carefully examined first for parasites, and if found, the proper wash should be used for their eradication. In addition, a very little sulphur may be given with good effect in their daily food...

GOOD HEALTH.

Pathological—What we Breathe.

Very suggestive experiments have been made by Mr. Blackly, in connection with his researches upon the "hay fever," with a view of determining the extent to which pollen of various plants is diffused throughout the atmosphere...

Mr. Blackly remarks that his experiments also afforded abundant proof of the presence of fungoid spores in the air in large quantities. In one experiment, which lasted four hours, and in which the number of pollen grains collected at an altitude of 1,000 feet was 1,200, the spores of a cryptogam (probably Ustilago setigera) were so numerous that he could not count them...

Worth Knowing, if True.

Among the many sanitary virtues which have been ascribed to the eucalyptus or Australian gum tree, we have now the assertion that it is especially valuable for rheumatism, a disease which has heretofore baffled medical science. Instances are given in proof of the assertion...

The Call, of this city, a few days after publishing the above, gave its readers the following additional confirmation: Since our article of Tuesday, attesting to the virtues of eucalyptus leaves in the cure of rheumatism several persons have since called at our office...

Delicate People.

There is a constant sympathy expressed by robust people for those of slight physical constitutions. We think the sympathy ought to turn in the opposite direction. It is the delicate people who escape the most fearful disorders, and in three cases out of four live the longest. Those of gigantic structure are almost always reckless of health...

A HEAVY DOSE OF MERCURY.—A few days ago, says the Gilroy Advocate, of April 3, Mrs. Anna Babb's little boy drank a pound of quicksilver. The child is less than three years old, and even in California is considered rather young to indulge in so strong a beverage...

A DOG WITH THE MEASLES.—A house dog in Upton, Mass., had the measles simultaneously with the children of the family, from whom he caught the disease. He was carefully doctored, and was getting along finely, when one day he slipped out of doors and played in a snow bank. This indiscretion was fatal. He took cold and died.

USEFUL INFORMATION.

The White Streak in Silk—An Interesting Discovery.

For a number of years the silk manufacturers of this country have been troubled by the appearance of what is commonly called a "white streak" in dyed silk. This name describes the appearance about as well as any other term we can apply, and has been adopted for lack of any more positive information respecting it...

It has the appearance of a slight roughness or fuzz on the side of the thread as it lies on the spool. It is invariably white and easily recognized, especially when it occurs in the black silk. The combined talents of the silk manufacturers and dyers in this country have been employed during the last few years to discover some method of overcoming the white streak, either by varying the process of manufacture or by covering it in the dye...

Some manufacturers believe that it is due to carelessness during the process of dyeing; that the silk is not thoroughly washed from the soap suds in which it is boiled, leaving particles of soap adhering to the silk. Others stoutly affirm that it is due to the dead wood which the silk takes on as it passes over the wooden rollers of a machine known as the stretcher...

The Nonotuck silk company's present theory is that the streak is due in some way to the process of adulteration to which the silk is subjected as it is wound on to the reel from the cocoon. They think it possible that the cocoons when wound may be soaked in warm water to which a quantity of rice starch has been added, thus making a kind of rice water or thin paste, which the silk takes up as it is wound, thus adding a cheap weighting material to the silk...

I have lately submitted samples of the streak, which were found both in the raw silk and in the dyed silk, to Professors Verrill, Eaton and Johnson, of Yale College, New Haven, who all confirmed the theory of its being a fungus growth on the silk. An eminent naturalist of Boston, whom I consulted on the subject, also confirms the theory, and thinks that we may find that this growth is connected with the disease with which the silk worms of Europe have been troubled for so long a time.—C. A. Burt, Oneida Circular.

Important Researches on Explosive Substances.

Recent experiments have shown that two different kinds of explosion can be produced in all explosive substances. The first is deflagration, the second is detonation. The deflagration of dynamite (gunpowder) is quite harmless; while its detonation, as produced by fulminate of mercury, develops an explosive force four or five times that of ordinary gunpowder. Gunpowder is no exception to this rule. When its deflagrating power, (ordinary discharge by a fuse) is represented by 1, its detonating power, when properly fired by fulminate of mercury, is 4.34.

Roux and Sarrau have recently been making some careful experiments in this direction, which are reported in Comptes Rendus as follows: The reciprocal of the weight (due corrections made) of each substance, which when exploded in one and the other manner sufficed to send similar cast iron shells, gave the relative explosive forces. Some results of the experiments are given in the following table, the explosive force of gunpowder ignited in the ordinary manner being taken for unity:

Table with 2 columns: NAME OF SUBSTANCE, EXPLOSIVE FORCE. Lists various substances like Mercury fulminate, Gunpowder, Nitro-glycerine, etc.

Of the highest practical importance is the discovery of the detonative explosion of gunpowder induced by the detonation of nitro-glycerine (itself set off by the fulminate of mercury); for the force of the explosion is more than fourfold greater than that obtained by igniting gunpowder in the ordinary manner. (The increased force of gunpowder and gun cotton, when exploded by the agency of detonation, was fully demonstrated by Abel six years ago). The authors observe that the mass of the substance employed for exciting detonation must usually bear a certain proportion to that of the substance to be exploded, but in some cases the action is propagated throughout the latter when once up at any given point.

GOOD PIE CRUST.—Many persons have difficulty in making pie crust, often finding it heavy and dark. A lady writer in the Vermont Journal gives directions how to avoid this: To one quart of flour thoroughly mix one small teaspoonful cream tartar, one teaspoon of lard, (less will do,) lightly rubbed in the flour, one teaspoon salt, half teaspoon soda dissolved in very cold water. Mix lightly with a knife, pouring in a little of the water at a time. Do not wet all the flour, and do not knead it. If you want the top crust to resemble puff pie crust, roll out some of your dough and spread on lard, sprinkle on flour, then roll up. Now, do not do as I used to, cut off a piece and turn the edges up and roll out. I have learned a better way. Roll with your rolling pin a piece large enough for your top crust, just as it lies rolled up on your board. Wet the bottom crust around the edge with cold water before putting on the top crust. Do not pinch the edges of the top crust down. Cut or prick, to let the air out while cooking. Bake in a quick oven and you will have a nice looking pie.