

most equaling the most noted champagnes of Rheims. The light wines of Sonoma are largely used in the manufacture of this sparkling and exhilarating beverage. Two methods of manufacture are used; the natural fermentation in the bottle, and the injection of carbonic acid gas by the soda fountain; the former being the only true method of making champagne, the latter being an imitation that has prejudiced consumers against the home-made article. There is no doubt that some of the champagnes of California are equal to those of any country, and will soon supply the home demand.

Mr. Arpad Haraszthy, who is extensively engaged in cultivating the vine in Sonoma County, and in making champagne in San Francisco, estimates the cost of land and establishing a vineyard in that county at \$150 per acre, which, when in full bearing, should give a net return of from \$50 to \$60. Each acre will give from 350 to 400 gallons of wine, worth from twenty-five to thirty-five cents per gallon at the vineyard; grapes selling at from \$20 to \$35 per ton, the higher price being for the choice European varieties.

At Sacramento the Johnson Distillery Company, operating under a patented process of making brandy, is prepared to work up the large crop of grapes grown in that vicinity. By this process it is claimed a better quality and greater quantity of brandy is made than by the old method of making it, now brandy being given the taste and appearance of age.

**NUTS AND FOREST TREES.**—The first steps in arboriculture in California were in the planting of the hardier varieties of fruit trees, extending with caution to those more delicate, until it is ascertained that there is, practically, no limit to the cultivation of fruit, nut or forest trees. Of fruit trees it is ascertained from the reports of the Surveyor-General that there are some 4,000,000 growing. The principal nut trees are the almond and walnut, which are successfully grown in nearly every county in the State, Alameda, Sacramento, Santa Barbara, San Bernardino and Sonoma leading. Almonds of several varieties are grown, the favorite being the Langueque, a soft-shell, which is well adapted to many localities. This fruit, or nut, blossoming early in the season, is often blasted by frosts in localities subject to such visitations, as near the snow line in the mountains or by the damp river bottoms of the Sacramento. The almond tree, resembling the early peach, flourishes in localities favorable to that plant, and comes in bearing in three or four years from the seed. The walnut, of the European variety, the most prized for its nuts, is grown quite extensively, there being reported upward of 100,000 trees as in cultivation. This tree comes into bearing in about ten years and continues fruitful for a century. The chestnut, butternut, filbert and others are grown to a slight extent, and will, undoubtedly, in course of time, become prominent among our products. These trees are rather slow growers, but long lived, and while ornamenting the landscape return a profit in nuts and valuable wood to the owner.

The cultivation of forest trees, or trees for the value of their timber, alone promises to become an important interest with land-owners. The native forests of California, while of the grandest and most valuable of their class in the world, are devoid of many varieties of timber most used in the mechanic arts, such as in making agricultural implements, wagons, wooden ware, etc. A number of fine cabinet woods are indigenous to the country, as laurel, myrtle, madroña, mountain mahogany, manzanita, etc., susceptible of a high polish, and have acquired a well established celebrity for their great beauty. The pines, firs and redwoods are unsurpassed in quantity and grandeur of growth, and the forests of Sierra Nevada and the Coast Range mountains seem sufficient to supply the world with lumber. Live and deciduous oaks of the various classes grow abundantly, but the wood is usually brittle and unfit for the uses it is generally devoted to in other countries. In the deep mountain cañons grows a very good quality of live oak, but its inaccessibility has prevented up to the present its appropriation to use. The system, recently adopted, of V flumes for floating lumber, will render the timber of the otherwise inaccessible localities available, and will thus open an almost inexhaustible and exceedingly valuable resource.

Many of the valuable varieties of Eastern, Australian, Japanese, Asiatic and other forest trees have been transplanted here, and grow with a luxuriance equaling those of their native soil. The maple, ash, locust, and hickory of the east, and the eucalyptus of Australia are the most valuable. Of the latter are twenty or more varieties, and their virtues are loudly extolled. It is the grandest tree of the Australian forest, and grows with great rapidity in California soil, trees of a dozen years of age towering a hundred and twenty-five feet in height, even the plants of four or five years' growth being stately trees. In Alameda County a forest of 195 acres has been planted with eucalyptus by U. S. Surveyor-General J. T. Stratton, which is growing well, the trees at four years of age being fifty feet in height and twelve inches in diameter at the trunk. Seven hundred trees of this size are on an acre, but half are to be removed, leaving 350 per acre to continue their growth. The value of those removed, if sold for firewood, is estimated at the rate of \$100 per acre, the cost of the plantation, including land, cultivating, interest, etc., being at the rate of \$60 per acre. This is a fair and noble experiment, and great hopes are entertained of the result. At present the value of the eucalyptus for fuel or for use in mechanics is not ascertained, but the problem will soon be solved. The medicinal properties of the tree are claimed as very important, both from the medicines extracted from it and its influence it has in preventing miasmatic diseases in its neighborhood. For this purpose it has been extensively cultivated in India and Algeria, and is thus indorsed by the governments of those countries. A dry soil and a warm climate are most favorable to its growth, and if this tree proves to possess the properties claimed of it, it is certainly a valuable acquisition to our forests.

**COFFEE.**—An indigenous shrub, common in the foot-hills of the Sierra Nevada, much resembling the coffee plant, has been called "wild coffee," but by others is classed as a species of buckthorn. People familiar with the coffee plantations of Central America were the first to point out the resemblance of the stalk, leaf and berry, and it is quite probable that such a kinship exists that the native stalk would support the graft of the true and cultivated plant. Should this prove true, another and important resource is added to our native wealth.

**TEA.**—An attempt at the cultivation of the tea plant was undertaken, in 1870, by a colony of Japanese, in El Dorado County, but from the interruption of race prejudice, bad selection of land and other causes, the experiment proved unprofitable, as nearly all first trials have, and the project was abandoned. The tea plant, however, has been grown successfully in several localities as a rare shrub, thus proving the adaptability of our soil and climate for its production, were it remunerative.

**GRASSES.**—A long article could be written descriptive of the native grasses of California. In bygone times this was the favorite land of the herdsman, and horses and cattle, deer, elk and antelope ranged over the country in countless droves, unattended and uncared for by man, feeding upon the spontaneous growth of the soil through all seasons of the year. A peculiarity of the grasses being the abundance of seed, which, ripening with the stalk, affords nutriment when all seems dry and barren. In the southern part of the State the burr clover and the alfalfa or filerice constitute the chief herbage, and several varieties of red clover, timothy and wild oats, in the valleys and hills of the north. Alfalfa, or lucerne, is much prized and its cultivation is becoming general. The peculiar qualities of this grass is its strong roots, which strike deep for water and enable the plant to grow and retain its verdure during the long and dry summer. So prolific is the growth that in favored localities from two to four cuttings of hay are made annually, returning from two to four tons per acre each cutting. Where uncultivated land is used in pasturing sheep, from one to ten acres are required per head, but the same in well cared for alfalfa will feed twenty head per acre. This grass requires cutting often, or grazing constantly; otherwise its rank growth renders it unfit for the purposes sought.