

## THE VINEYARD.

### The Best Varieties of Wine Grapes for California.

By PROF. F. T. BIOLETTI of the University of California at the St. Helena Meeting of the California Viticultural Club.

The greatest advantage that California possesses as a wine-producing region over the rest of the United States is the fact that the so-called European grape, *Vitis vinifera*, grows here easily and luxuriantly. This gives us an advantage in cheapness of production. *Vinifera* varieties yield larger crops than the varieties of any other species. It gives us also a still greater advantage in quality. In spite of the great improvement which has been made in the wines manufactured from varieties derived from the wild American vines, it has not yet been found possible, and probably never will be, to give them the finer qualities of flavor and bouquet which seem the exclusive possession of *vinifera* varieties.

In order to derive the full benefit of these advantages, it is essential that we make a suitable choice of the varieties to plant. There are *vinifera* varieties that will not yield half the crop of Concord, and there are others which will make a wine farther removed from Chateau Lafite than the wine of Norton's Virginia.

The importance of the question, "What are the best varieties of *vinifera* to plant?" is, therefore, evident, and the Viticultural Club could do no more important work than to contribute to the solution of the problem. The problem is intricate and difficult and not to be solved off-hand. It requires years of experience to tell what are the best varieties for any locality, and the solution for one locality may be different from that for a neighboring one. It is usually impossible to say what variety or varieties would be best for any particular vineyard, and even to give a list of those which would in all probability be good requires a great deal of judgment, founded on long experience. The members of this club undoubtedly possess a large amount of information derived from experience and observation, which, if brought together, would be of great use to the industry at large.

I would like, therefore, now to state what seem to me the conditions of the problem in order to provoke discussion, and finally to obtain results worthy of publication, based on the consensus of opinion of practical grape growers, as to which are the most likely *vinifera* varieties to give good results in our chief grape-growing regions.

It is interesting and generally useful in dealing with a subject like this, which has engaged the attention of many men for a long time, to consider it historically.

**HISTORICAL.**—In the earliest days of grape growing in California there was but one wine grape—the Mission. All wines, dry and sweet, red and white, were made from this variety. This satisfied the simple tastes of the padres and the uncultivated palates of the pioneers. As the country settled and the population increased, a demand for better wines, conforming more to the European types, arose and efforts were made to introduce European varieties of grapes.

These introductions occurred thirty or more years ago and have continued at intervals ever since. The first importation of importance was that of Harasthy of Sonoma, who gave us the famous Zinfandel. Following him in the late '70s and early '80s numerous important importations were made from France and Germany, the chief being those of Crabbs of Napa, Drummond of Sonoma and Charles Wetmore of Livermore. Through the efforts of these pioneers about 600 or more varieties were introduced, of which 300 or 400 were wine grapes. These wine grapes included the chief varieties of the Rhine, Burgundy, Rhone Valley, South of France, Pyrenees, Medoc and Charentes, in fact all the principal wine grapes of France and Germany and a certain number of those of Austria-Hungary and Spain.

Later, considerable importations were made by various nurserymen and growers and by the University of California from Spain, Italy and elsewhere. Varieties by twos and threes were brought in from all parts of Europe and even from Western Asia by immigrants who wanted to see the varieties they were used to growing around them in the new country.

In all probability not far from 1000 varieties of *Vitis vinifera* have been introduced into California, of which number perhaps two-thirds are wine grapes. It is no small task from this vast number to pick out those which are best or worth keeping. Undoubtedly a large number have been eliminated and have disappeared from cultivation owing to defects which have shown up in practice. We can moreover be guided to some extent by the experience of other countries, and varieties which have been practically abandoned in all other countries need receive little attention from us. Our investigation may be profitably confined to not many more than a hundred varieties which have shown good qualities in some part or other of California.

**QUANTITY AND QUALITY.**—During the first period

of importing the price of grapes was high, and the importers and experimenters gave little attention to anything but the quality of their varieties. The Cabernets of Medoc and the Pinots of Burgundy were given the first place, because they produced the finest and most high-priced wines of Europe. Large quantities of these and similar varieties were planted and led to great disappointments. Though most of these varieties gave wine of undoubtedly higher quality than the Mission, the growers soon found the extra price received for the Cabernet grapes, which was seldom more than 25%, did not pay for the deficiency of the crop, which was often from 50% to 75%.

This resulted in the almost complete abandonment of all regard for the quality of wine which a grape produced. The only question asked was which variety gave the largest crop. This was perfectly natural from the point of view of the individual grower, but it is open to question whether it was good policy from the point of view of the industry at large. At present a very large proportion of our vineyards are planted with varieties which are defective in some respect. They lack color or acid or flavor, and while with appropriate methods of wine-making they will undoubtedly produce wines superior to those of any varieties derived either wholly or in part from American species, they are unsuited to produce wines that can compete with the finer qualities of European wines imported into the United States. It is in this direction that competition is the hardest for us to meet, but at the same time in which there is the greatest prospect of a large, permanent and profitable trade, for it has been abundantly proved that with the right grapes and the right methods California can produce wines that equal those of any part of the world.

We can hold the trade of the few millions of regular wine consumers of Latin race by keeping the price low enough. But even in this case quality is not to be neglected entirely. An Italian laborer will not pay 50 cents a gallon for fine Cabernet if he can get drinkable Concord for 25 cents. But he willingly pays a few cents a gallon more for a good wine than for a poor one, and any improvement that we can make in the quality of our common wines without greatly increasing the cost of production will make it easier for us to get and keep this market.

It is, however, in supplying the many millions who drink, or may be induced to drink, fine wines, either regularly or occasionally, that quality is of the first importance. A very considerable number of the 80,000,000 inhabitants of the United States could be trained to drink a certain amount of California wine if they could always depend on its being good. The first essential in producing a good wine is to have good raw material to work on. We cannot make a table wine from Mission or Feher Zsagos that will satisfy a man who has tasted good Medoc or Chablis.

To supply the market that simply demands a cheap wine of reasonable quality we are growing grapes which are fairly suitable, though there is still room for improvement even here. Our Carignan, Zinfandel and Mataro are in many localities as suitable varieties as we could find for this purpose. In the interior valleys, especially the San Joaquin, they lack color and character and can be much improved on by varieties which will give equal crops.

For the market which demands a wine of extra quality and is willing to pay an extra price the proper choice of varieties is of even greater importance and requires the greatest care. While there are localities where Carignan and Zinfandel will give fine wines, they are not numerous, and even in such localities other varieties will give better results in most cases.

**SELECTION OF CUTTINGS.**—In this connection there is a most important question regarding quality and quantity which has been almost entirely neglected in California, but which I should like to see taken up and investigated by the Club. This is the question of the selection of cuttings. The bearing of a vineyard depends not only on the variety of grape planted, but on the climate, soil, methods of pruning and cultivation and on the selection which is exercised in taking the cuttings to start the vineyard. All cuttings incline to vary in many respects, but especially in this matter of bearing. The variation in this direction is very slight in the case of some heavy bearing varieties such as Aramon and Burger, but even here it is not negligible. With other varieties, such as Muscat and Malbec, it is very great and may make a difference of 100% or more in the amount of the crop.

In nearly all the vineyards of Europe care is taken in the selection of the cuttings to be used for propagation. This care is usually confined to marking the vines bearing a large crop during the vintage and taking cuttings only from these marked vines, for propagation. In South Africa only those cuttings are used which are called "bearers," that is, those made from canes which grow from two-year-old wood. All suckers, laterals and water sprouts are rejected. These measures, almost completely neglected in California, are useful in maintaining the bearing qualities of a variety. But it is possible to do better than this. By marking the vines continuously for a series of years and then only using cuttings from those vines which produce good crops every year, it is possible not only to maintain the fertility of a variety

but to increase it greatly. The Cabernet Sauvignon, which gives normally under good conditions only from three to four tons per acre, is said to have been improved in this way in certain Australian vineyards until it has been made to yield as much as nine tons per acre. The same thing has been done in France with Malbec and in California with Merlot and Tannat, all varieties which have a reputation for giving poor crops.

The moral of this is that we may improve the quality of our wines very much while sacrificing little or nothing in quantity, if we choose grapes which we know will produce good wine and then select the cuttings with proper care, to ensure our having only heavy bearing vines. Any vine, therefore, which produces grapes of the quality we want is worth experimenting with, in the attempt to bring its bearing qualities up to a practical standard.

**VARIETIES BEST AT THE PRESENT TIME.**—In the meantime it is well to know what varieties have given good results in at least some part of California, without waiting for this improvement of promising varieties by selection. I will give, therefore, a provisional list of the varieties which at present seem the most suited for planting in California. This list is necessarily incomplete and defective, but is the result of personal observation in most parts of the State, and is given in order to excite criticism, discussion and the exchange of views.

In order to have some basis for comparison I have taken the Zinfandel as the most widely known and distributed of our varieties as representing the California standard for both quality and quantity. The list of grapes for dry red wine contains only the names of varieties which have given results superior to this standard in some parts of the State.

For dry white wines there is no variety sufficiently preponderant in our vineyards to serve as a standard.

For wines of Port type the Zinfandel can also be taken as a standard, as a great part of our sweet red wines is made from this grape. There is, moreover, no grape which we grow which will give as good results in all the necessary characteristics of crop, color and quality for this purpose as the Zinfandel. By a combination of two or three varieties, however, we can doubtless get very much better results in all these respects.

For sweet white wines of sherry or Madeira type we have an abundance of excellent varieties, most of which are equal or superior in quality and bearing in the sherry districts to the Mission, which may be taken as the standard for this purpose.

In making a list of this kind it would be very desirable to state what conditions of soil and climate are most suited to each variety, for a variety which will do well on a northern slope of the Santa Cruz mountains may fail completely in the alkali soils of Tulare. It is in this particular of the adaptation of varieties to the varied conditions of our widely differing grape growing sections that the experience of the members of the club will be most valuable. In this preliminary list only one distinction has been made, viz., that between the coast region of which Napa and Sonoma may be taken as typical, and the great valley of which Fresno may be taken as a good example. The conditions in the coast region are very varied and the list of varieties of that region is correspondingly long. The conditions of the great valley are sufficiently uniform to make it safe to conclude that a variety which will do well in one part is likely to do well in another.

#### VARIETIES RECOMMENDED FOR DRY RED WINE.

Coast—	San Joaquin Valley—
Serine.*	Valdepenas.*
Carignan.*	Lagrein.*
Alicante Bouschet.	St. Macaire.
Mondeuse.	Alicante Bouschet.
Tannat.	
Merlot.	
Verdot.	
Malbec.	
Aramon.	
Barbera.	

#### VARIETIES RECOMMENDED FOR DRY WHITE WINE.

Coast—	San Joaquin Valley—
Palomino.*	Burger.*
Semillon.*	Verdal.
Sauvignon vert.	Aramon.
Sauvignon blanc.	Peverella.
Burger.	Kleinberger.
Johannisberger.	
Clairette blanche.	

#### VARIETIES RECOMMENDED FOR SWEET WINE.

Red—	White—
Mission (lacks color).	Beba.*
Monica (lacks color).	Palomino.*
Grenache (lacks color).	Mission.
Mourastel (lacks color).	Grenache.
Trousseau (lacks color).	Furmint.
Alicante Bouschet (for color).	Mantuo.
Beclan (for color).	Peruno.
Tinta Madeira (for color).	Mourisco branco.

\*Most highly commended.

It would take too long to go into detail as to the experience with these varieties and the special adaptations of each, but I have designated four red grapes, Serine and Carignan for the coast region and Valdepenas and Lagrein for the valley region, which can be highly recommended with little hesita-

tion. The four white grapes indicated, Palomino and Semillon for the coast region, and Burger, Beba and Palomino for the San Joaquin, are also worthy of unqualified recommendation.

In closing, allow me to express the hope that the members of the Viticultural Club will communicate their individual experience with any or all of the varieties of grapes in this list in order to improve it by additions and eliminations until we get a list that may be taken as a standard for future plantings.

## THE POULTRY YARD.

### Turkey Growing.

To THE EDITOR:—In answer to your recent request for experience with turkeys, I offer the following as my conclusions: Unless one has an alfalfa or clover range, large or small, they should not attempt to raise a great number of turkeys. The first investment should be a woven wire fence about the entire yards and range. The fence should be about 4 feet in height, placed close to the ground, and if the range is fairly large, say several acres, turkeys show no inclination to fly over. The wire is not very costly when purchased in large quantities.

The second investment is coops. Mine are 6x3 feet, 2½ feet high, with 1-inch wire mesh about the sides and 2-inch mesh over the top. An upright opening at one end allows the turkeys to go in and out, and this opening may be closed by a shake, or in rainy weather, a small enclosed "lean-to" coop may be placed against it, openings together.

HATCHING.—Turkey eggs hatch well in an incubator, but it is almost impossible to raise the turkeys to maturity. It is quite difficult to regulate the heat properly for brooding them, and when once stunted they usually fail to mature well. Chicken hens hatch them very well, but should not be allowed to care for the poults, as they are too nervous and cover too much territory in a day, thus tiring the little fellows.

A turkey hen will lay from twelve to twenty eggs the first laying and will then wish to set. She will cover fifteen eggs very well, and they will hatch in four weeks. Some people remove the poults as fast as they hatch. That is probably a good plan. My practice has been not to disturb the hen until the hatch is completed, and I think it will be found that the empty shells help to keep the poults from being crushed.

When the hatch is completed, I dust the turkey hens thoroughly with bnhach (this should also be done three times while she is setting) and place her with the poults in a coop which has been previously carried out on the alfalfa. The next day, and each day or so thereafter, I drag the coop onto a fresh patch of alfalfa. That is all the trouble there is in cleaning and changing the coops. The turkeys should not be allowed out of the coops for four days. If the weather is damp, some sacks or a canvas should be thrown over the wire coop and the lean-to coop used, but care should be taken not to keep them too warm, as they are then very liable to catch cold. They should be dusted once a week for three or four weeks with the insect powder. This will keep them free from vermin.

FEEDING.—Don't overfeed! Right here I wish to say that the "half-starved" turkey will grow to be the largest and fatten the best for the Thanksgiving trade. The first feed should be given them twenty-four hours after hatching, and should consist of dry curd, a little black pepper and finely crushed egg shell, mixed. Feed twice a day, very little at a time. They should have plenty of grit and fresh water. After the first feed of curd, my turkeys get nothing but bran and sweet milk, mixed to a dry crumb (not sloppy), with a little black pepper added about once a week, and an occasional feed of curd. On my mixing table I keep a two-quart jar full of lime water, made from about one pint of unslacked lime, balance water. I pour about a pint or two of this lime water into a bucket of water and refill the jar with fresh water. I give the turkeys this lime water two or three times a week.

When feeding the little turkeys, if they fail to "squeal" and devour the food greedily, miss feeding them one meal. They should always be hungry and free from vermin, and there will be no sickness to contend with. When two months old I feed but once a day, in the evening.

The hen will try to hide out with her turkeys the first few nights, but after that they will go to their own coops at night, and they should be shut in to keep them out of the early morning dew. They should be taught gradually to eat rolled barley, and their food should never be changed suddenly. I have never found it necessary to feed them chopped onion, hard boiled egg, bread crumbs, etc., and they should never be given red pepper nor corn in any form until they are about grown. When fed the bran and sweet milk they will be as plump as partridges when ten days old, as the milk is everything to them and the lime assists in making feathers. Without the lime they will droop and often die when getting their third feathers. Should they refuse to eat at

this time they must be caught and fed some grit (crushed crockery is best), and wheat or barley, with lime water to drink. A wagon load of gravel costs but little, and placed in one pile where they may have free access to it will furnish grit for 250 turkeys for a season. They should never be fed soured or fermented food.

When the turkeys are well feathered and about as large as a small hen they should have a final dusting with insect powder, and driven with their mother to roost. They will range in the alfalfa in the early morning, coming in about 9 o'clock for grit, water and a rest in the shade. They should be fed a little rolled barley regularly at night, and a few weeks before Thanksgiving be taught to eat whole corn, also beans and pumpkin cooked together. This is the best of fattening food.

I am aware that my method is somewhat at variance with the usual advice, but will say I have lost no turkeys from sickness this year, and my turkeys are larger for their age than any I have seen so far this season. By following a plan similar to the above one person can attend to about 500 turkeys.

Fullerton, Cal. MRS. N. FRANK MORSE.

## ARBORICULTURE.

### Shade Trees in Southern California.

Supplementary to the interesting essay on shade trees by Dr. W. L. Jepson of the University of California, which appeared in our last issue, is an outline of an address by Mr. Ernest Branton, secretary of the Southern California Floricultural Society, at a recent meeting of the Progressive League of South Pasadena, as reported by the Star. Mr. Branton spoke strongly in favor of ornamenting streets and highways, and the alignment of these thoroughfares with appropriate shade trees upon a general plan.

In addition to the ornamental purposes, the utility of the trees was pointed out. The speaker alluded to the æsthetic effects and also mentioned the fact that the trees give off moisture, moderating the intense summer heat. Mr. Branton urged the necessity of uniformity and system. In reference to this important matter he said:

Most communities are planted with several sorts of trees to each block, of every conceivable size, color, form and degree of desirability. Such planting looks as irrational as an orchard of all sorts of fruit trees hopelessly mixed. Oranges, peaches, walnuts, persimmons, olives and pomegranates—no order, looking much as though the different seeds had been scattered by hand, except they are planted in rows. Prof. Waugh, in his work of landscape gardening, says such street planting reminds him of nine monstrously different buttons in a row down the front of a Prince Albert coat.

William S. Lyon, in his "Gardening in California," says: "There is one feature in the planting of street trees that calls for special mention. This is the reprehensible practice of planting a jumble of sorts upon the same block. Not only is the effect as a whole bad, but the individual beauty of each is lost in the kaleidoscopic shifting of form and color, that only serves to confuse and bewilder the passerby."

Little can be done toward uniform planting without zealous and well directed co-operation on the part of all interested. There must be unity and intelligence of plan and the work should be carried on by farmers' clubs and improvement associations, those necessary organizations which do not presume to tell the community how it should spend its money, but only how it may get, with efficiency, the greatest amount of sightliness for its money. It is of the highest importance that a plan be outlined on which people of diverse tastes and interests can either agree or effect a compromise. It will not be impossible to find a tree upon which all will agree, for the vast majority of people desire above all things that their neighborhood should be attractive, and will yield somewhat in their opinion in order to obtain desirable results. We must learn to sacrifice some things in order to get others of different tastes to co-operate with us. It is best, perhaps, after a thorough discussion of the merits of the different trees, to put the selection of one or each street to a vote and let the majority rule, not forgetting that this is a matter which concerns the general public more than the individual.

PREPARATION.—One of the greatest mistakes made is the lack of preparation. All holes for trees, no matter in what soil or what the size of the tree, should be dug from 3 to 4 feet deep and of the same diameter. Fill this hole with the best soil to be had, putting the very best at the bottom, below the roots. The trees, finding better food below than above, will develop a deep root system, and you will not then find so many dying trees nor so many heaved and broken sidewalks.

In choosing your stock get free-rooted and vigorous trees, not stunted ones. Better plant a thrifty one 6 inches high, than one as many feet whose roots have been confined for two or three years in a pot or can.

WHAT TO PLANT.—As a rule, too many trees to each lot are planted. Three trees on a 50-foot lot are plenty and the center one should be taken out

after a few years. The points to be considered in the choice of a tree are about six in number, as follows: (1) General appearance; (2) drought resistance; (3) cleanliness; (4) amount of care; (5) rapidity of growth; (6) root system.

In some places it is desirable to have deciduous trees and the argument in their favor consists of the fact that they allow a maximum of sunshine in winter and give a maximum of shade during the summer. But in California we can always get plenty of sunshine, and unless the location is such that too much mud or dampness will be produced, I prefer evergreens.

When all nature is gay and every one has cause to rejoice; when the hills and vales are covered with wild flowers and the air is laden with perfume from the orange groves; while the palm and banana are unfolding their wondrous leaf growths, we are rudely awakened from our pleasant contemplation of the beauties of nature by the sight of the cheerless, leafless deciduous tree, forbidding, inhospitable, the very picture of desolation, totally at variance with the beauty everywhere expanding.

On a warm sunny day in winter, when we look forth on waving fields of grain, or citrus groves weighed down with fruit, a leafless tree looks to me nearly as much out of place as would a banana grove in Minnesota or the Dakotas.

The word evergreen is not meant to cover conifers or cone-bearing trees alone, as the word is used in the East, but just what Webster says it means—any tree which retains its leaves throughout the year. Conifera, by the way, are unfitted for roadside planting, except on avenues of unusual width where 20 to 30 feet may be allowed for them, either along each side or through the center. Allow me to quote on this subject from "Gardening in California." The author says: "Conifers are frequently used for street planting, but as language is not strong enough to condemn the impropriety of their use for street purposes no further attention is accorded them here."

Public convenience demands the removal of all lower branches for a height of 8 or 10 feet of trees that align a sidewalk or public highway. As the exquisite beauty of most conifers depends entirely upon the integrity of their lower limbs, the impropriety of planting any tree subject to these requirements becomes apparent. The same may be said of all cone bearers and many others upon private premises. Trees of pyramidal growth should be allowed the whole of their natural support.

LIST OF TREES.—For wide thoroughfares, to those who wish deciduous trees, are recommended the Spanish chestnut, one of the grandest shade trees known; for a medium tree, the pecan; for a still smaller growth, the Texas umbrella. Another first-class deciduous tree of medium size is the oriental plane (*Platanus orientalis*).

In the list of evergreens, our native live oak (*Quercus agrifolia*) easily stands first—so beautiful and so perfectly at home that no argument is needed to place it at the head of the list. I have never before placed this tree at the head, because it has been impossible to procure it in the nursery trade, but last week a nurseryman wrote me that he had 1500 fine trees, and I know of others who have large numbers started. This tree is supposedly of slow growth, but in good soil and with a good supply of water for the first few years, it will keep pace with the average tree. The oaks should not be placed too close together, 40 feet being near enough for country roads, and in case of 50-foot lots, one every 50 feet, at the dividing line between the lots, and some smaller growing tree between. The latter could in after years be cut out. A good plan would be to plant between the oaks two fine flowering shrubs, even though they were deciduous, as the crepe myrtle. These could later be moved to the yard. I have been told there is a State law preventing the removal of any such tree, which would defeat such a plan. If such a law exists it should be amended, so as to allow of the rational treatment of our streets.

Next to the oak, in my estimation, stands the Victorian bottle tree (*Sterculia diversifolia*). It is one of the cleanest of trees, of a bright, pleasing shade of green, the trunk is straight and mast-like, the branches are not far reaching and therefore not liable to injury by wind, and needs little if any pruning; it is a fast grower when well supplied with water, yet noted for its drought-resisting qualities. Its general outline is well-nigh perfect, its carriage graceful; it does not grow so thick as to harbor dead leaves and rubbish, yet enough to cast all needed shade; seldom does one make abnormal growth, and it will not injure the sidewalk by upheaval.

The third best tree is perhaps to be found in the acacia family, though it is doubtful which one of several species should be used. The most common one is perhaps the "blackwood" (*A. melanoxylon*). In some localities we find grand street trees in acacias, *decurrens*, *mollissima*, or *Retinodes floribunda*. The latter at the age of ten years is the finest of the genus.

The carob or St. John's Bread is a tree that is bound to be extensively used in the future. It is a very fast grower and its drought-resisting qualities are of the first order.

*Grevillea robusta* is a good tree for dry localities