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VITICULTURAL.

SECOND ANNUAL

STATE CONVENTION,

Held Under the Auspices of the

State Viticultural Commissioners.

Five Days' Sessions.

FULL PHONOGRAPHIC REPORT.

INTERESTING PAPERS.

...BY...

PRACTICAL VITICULTURISTS

...AND...

SCIENTISTS

On Varieties of Wines, Raisin, Table and shipping Grapes; on Selection, Planting and Cultivation of Vineyards; on Vine Pests, Diseases of Vines and Remedies.

American Resistant Vines; Practical Fermentation and Care of New Wines; on Distillation; Construction of Cellars, and Cooperage, Etc., Etc.

Markets for Viticultural Products—Their Requirements and Development.

Obstacles, Prejudices, Tariff and Adulations. The Uses and Abuse of Wines and Brandy.

Their Relation to Public Health and Character.

CATALOGUE OF EXHIBITS

...OF...

Grapes, Wines, Raisins, Currants.

Scientific Instruments, Tools and Implements, And Remedies for Pests.

COPIOUS NOTES.

[Specially reported for the S. F. MERCHANT, by H. A. JONES, Stenographer.]

The Second Annual Convention of the State Viticultural Association assembled on Monday, August 27th, 1883, under the auspices of the State Board of Viticultural Commissioners, in Dashaway Hall, San Francisco.

The members of the Commission, who are appointees of the Governor, are: Arpad Haraszthy, President, San Francisco—Commissioner for the San Francisco district.

Charles A. Wetmore, Vice-President, San Francisco—Commissioner for the State at large.

Charles Krug, Treasurer, St. Helena, Napa county—Commissioner for the Napa district.

J. De Barth Shorb, San Gabriel, Los Angeles county—Commissioner for the State at large.

Isaac De Turk, Santa Rosa, Sonoma county—Commissioner for the Sonoma district.

R. B. Blowers, Woodland, Yolo county—Commissioner for the Sacramento district.

George West, Stockton, San Joaquin county—Commissioner for the San Joaquin district.

L. J. Rose, San Gabriel, Los Angeles county—Commissioner for the Los Angeles district.

G. G. Blanchard, Placerville, El Dorado county—Commissioner for the El Dorado district.

John H. Wheeler, Secretary.

Charles A. Wetmore, Chief Executive Viticultural and Health Officer.

All resident local inspectors were requested some time ago to take an active part in procuring for the Convention representative viticultural products for study as to merits and comparatively as to excellence, as well as to make known to the vine growers, winemakers, distillers, wine and brandy dealers, raisin-driers, viticultural experts, specialists in the manufacture of tools and implements, the necessity of making a good representation.

FIRST DAY—MONDAY.

The Morning session was consumed in receiving and placing on exhibition, in the Hall, specimens of the viticultural products of the State, five tables being covered with different varieties of grapes, each labelled as known to the grower. The chief consignments received on the first day were from the vineyards of E. T. Eisen of Fresno, R. B. Blowers of Woodland, A. O. Langenberg of Anaheim, and M. Denicke of Fresno. There was also on exhibition three California seedling vines planted by C. A. Wetmore in his Livermore vineyard in 1880, and transplanted in 1881. They were sown from the seed and the largest showed a vine six feet in length. Three California and one Seedling Lenoir non-resistant stocks and one Arizona resistant stock were exhibited, preserved in spirits, all having been planted in 1880 on ground which foreign varieties of grapes had been killed by phylloxera. All four resistant stocks exhibited a healthy growth, with numerous well developed roots, showing the power of the native vine to resist the encroachments of the vineyard scourge. Mr. H. T. Pierce also exhibited a spring graft on a yearling stock of the native variety, which, since spring, had made a heavy growth of about four feet of wood. Not the least interesting exhibit of those so far placed, were specimens of the phylloxera under a microscope.

AFTERNOON SESSION.

The formal proceedings of the Convention opened at 2 o'clock, by the President, Arpad Haraszthy, who spoke as follows:

MR. HARASZTHY:—Ladies and Gentlemen: It affords me great pleasure to meet you again at this our Second Annual Convention. Since our last meeting, there has been immense progress made in the diffusion of viticultural knowledge among those who are about commencing to interest themselves in viticulture, and in the interchange of knowledge, ideas and suggestions from the older wine-growers of our State. I hold that no matter what books fill our libraries and no matter what intercourse may exist among near neighbors, that the true way to acquire information in the most rapid, most explicit and most concise manner is to deal as in our future progress is, to meet at stated times, annually or semi-annually at a place easy of access from every portion and part of the State, where all people engaged in wine-growing and wine-making can meet and exchange their opinions and experiences on all questions of an interesting or troublesome nature which may occur to them.

Many portions of the State, though far apart, may have, in spite of distance, similarities either in climate or in soil, and a knowledge of results there arrived at, as to the failure or success of particular kinds of vines, and the best method of managing them, if widely made known, can but result in great value, especially if discussed in a public assemblage; and nothing can be more rapid than this interchange in a few days or a few hours of practical knowledge, throwing aside everything which is either theoretical only, or useless.

We have to congratulate ourselves on the good work done by the Convention that was held last year, and on the good results already flowing from the Convention some months ago in Los Angeles, giving as it did new life, and infusing fresh enthusiasm into an enterprise which has been carried on so long under so many difficulties, and I hope that in this year's session your interest will be still further roused. This being the first day, and our attendance consequently limited, I trust that on the succeeding days of the week, your numbers will be much greater, and the interest correspondingly increased.

I will call your attention to the samples of grapes brought here for exhibition, and some samples of wine which we would also like to have you examine. These grapes, it is proper to state, have been brought in before they were fully ripened, not being intended to be eaten, but that they might be examined and classified under their proper names. There are so many varieties of grapes in our State that great confusion has arisen, sometimes even, in regard to their true names. What is recommended in one section is rejected in another, and, possibly, adopted in a third, simply because the proper knowledge has

not been diffused among our wine growers.

Now I will briefly state the object of this meeting. As has been said in this call for the convention, the objects of the convention are critical rather than self-laudatory, and will be devoted to exchanging information as to the proper cultivation of grapes, rather than to impressing laymen as to the magnitude of the grape industry of the State. Many special papers will be read and their topics discussed. To facilitate the work of the convention, many well-known and experienced horticulturists have been invited, and will prepare and read papers on special objects of interest. As we have said, we aim to progress in our industry, and not to flatter any person or any locality. We wish to learn from each other something of practical and permanent value, and to disseminate exact truths and principles for the safe guidance of all who desire legitimate progress. We cannot insist too much on people coming to us, wine growers from every section, and giving us their frank, candid opinions, such as will throw some light upon the very interesting subject. Our Commission reserves the right, through its presiding officers, to rule out of order any discussion which is foreign to or unfriendly to the purposes of the convention; also, to so regulate any discussions as to time in speaking, etc., as to avoid waste of time and expense, as far as possible. It is not the design of these conventions to make positive utterances, affecting the policy of the wine growers and others involved in our industry, by passing resolutions, writing formal reports, etc., but to permit each member to glean for himself or herself some light upon the subject, free from the bias that may creep into hastily prepared resolutions and hurriedly digested reports. If, however, there should be any subject apparently demanding a formal expression of opinion, a resolution referring to the same may be acted upon, after being first referred to a committee, and reported upon a subsequent day.

It is necessary at meetings like this to have these things understood. A special committee will be appointed to take charge of all exhibits and to direct the manner of their inspection. People will not be invited to attend with a view to selling or drinking viticultural products, except so far as is necessary to the intelligent examination of the same under the direction of the committee; therefore, large exhibits were not solicited. I will further say that we expect to see a great number of wines exhibited here, which will be tested by a committee under the direction of the committee, who are appointed for the purpose of receiving them and having them tested. They will be tested from day to day, the tests being made in the morning. Among other things that have just received is a case of Hungarian wine, which I saw, and through the suggestions made by Mr. Wetmore, I had written to Max. Greger in New York, to send us a case of Hungarian wines, that he could certify to as being absolutely pure, and from the districts as represented. They are all noted wines, and the best of the kind, and will be on exhibition after Wednesday for trial, so that we can make a fair comparison of those wines with the wines of our own State. I will also say, that a number of years ago, Mr. Wetmore brought from Europe a valuable collection of sherries, of different kinds, of different ages and also some brandy or grape spirit, pure, unadulterated spirit, from the grapes grown in the Cognac District in France. Those have been in my possession ever since, and I have returned them to their owners. If any person has a report or samples, which they would like to compare, or have compared with wines of other sections, I would say that they are invited to do so, and we would very greatly encourage such comparisons, although the Committee have the best not to appoint a committee to make such a report upon wines, from the fact that jealousies have previously arisen from the action of such committees, and I hold, really, that one such committee is entirely inadequate to pronounce upon any wine, and I also smile when I hear of a committee, whether in France or California, where, where else, who will attempt to pronounce on the higher qualities of a given number of wines. They may say that one wine is

better than another, in their judgment, but there it ends. They cannot reach the judgment of every person, and I think the only way is for each person interested to compare their wine, brandy, or raisins, with those of their neighbors, or those from a distance, and form their own judgment. No man, if he has any sense, will take the opinion, usually, of a committee, in a matter where he is concerned; or the opinion of another person who may be directly opposed to him in interest. We do this, also, to avoid the clashing of little jealousies between one district and another; and we have determined therefore to let the people from the North, East, South and West, make their own comparisons and abide by their own judgments.

With these few words, I will now close my remarks, and announce as the subject for this afternoon, "The Discussion of Table, Shipping and Raisin Grapes, and Raisins;" and I invite every person here, who knows anything about the subject, or would like to make any inquiries, or give any information, to participate in the discussion. Mr. Harnsforth will read the matter of the shipping of grapes and the question of raisin and raisin making were very important ones, and well worthy the attention of the meeting.

He was satisfied that the business was not so good as to expect, and that most people thought, and the subject has not been taken as fully discussed as they merited.

Mr. Wetmore—Mr. President, there is a great deal of difference in our conventions on the part of modest members to open discussions. Invitations have been sent to all the leading shippers and growers of table grapes and wine grapes, and some of them were requested and specially invited to prepare papers, but unfortunately so far in all our conventions that end of our industry has not been properly represented.

Los Angeles and at Riverside were told that they supposed we were going to talk about nothing but wine, and they did not care to have anything to do with us anyhow, and a great many grape growers affect to have a prejudice against an association of wine makers.

The wine makers have a prejudice against them at all, and our convention has solicited them to take part in our discussions every time.

A great many things arise here that might be of value to them. The wine men are propagating grapes and experimenting with a view of teaching what varieties are best in each part of the district. The more information would be interesting to them; but we have not had the proper support from that end of the business which we ought to have had.

I think we have a right to demand cooperation all through the ranks, and that we should be frank. Mr. Eisen, who represents a vineyard, and though mainly occupied in raising wine grapes, he can show thirty or forty varieties of table grapes, that those who are shipping grapes could learn something from, and they should be here for their own benefit, and to acquire information. I think Mr. Eisen would therefore invite Professor Eisen to make some remarks upon the topic under discussion.

Mr. Eisen—I have prepared a paper upon the grapes of Central California, and especially of Fresno county, which I will read here for the purpose of giving you some information. I have a number of table grapes on exhibition here, but they are not fair samples of what we can produce, as I did not pick them myself, so I say they are not a fair sample of Fresno soil and climate. I consider the most valuable varieties of grapes are the varieties of France, and the Black Portugal. They ripen in the end of September, though they hang upon the vine until the end of December. It is a large, firm grape, the meat of a dark color, and more firm than the White Malaga or Muscat, or any other grape I have seen, and I think it is especially valuable for shipping. In our neighborhood it is more valuable than the Emperor. Another valuable variety is the Mill Hill Hamburg. It is nearly as good a bearer as the Black Portugal, but of course it has the quality of the Hamburg grape. It is apt to blight with the heavy rains we have. It is a fine grape; ripens earlier than the Black Portugal, but does not hang as long on the

vines.

The Deacon Superb is a very fine grape. It is an enormous bearer, forming good bunches, and of a white color.

Another fine variety is the Vaince Jaime, it is very French grape, but I have always got it from Spain; so I suppose it may be really a Spanish grape.

Mr. Wetmore—I would suggest as a topic of discussion the Muscat grape, which is, I presume, after all the great shipping grape of the State, and possibly always will be very prominent, but I have found by experience that in many parts of this State this grape is obnoxious, and does not succeed well everywhere.

I would ask the Professor to state, from his observations, under what conditions the Muscat does well in his county, both as to shipping and as a table grape, and what objections there may be to it, and how they may be remedied.

I consider the handling of the Muscat grape a very important question.

Mr. Eisen—We grow two varieties; the Muscat of Alexandria, and the Gordo Blanco. Both are similar in taste, but certainly different in shape.

The Muscat of Alexandria is an oblong grape. The Gordo Blanco is round. The Muscat has a loose bunch; the Gordo Blanco a very compact bunch.

I have grown them under various conditions, and I have seen them grown under as many more. I have different varieties of soil, some red and heavy, which we call the red land soils, and in another district, also on the plains, we have the white ash soil, and even on the white ash soil we have several varieties.

The finest Muscats I have ever seen, of either variety, have been grown on the red soil, on red heavy soil, provided the soil was perfectly permeated with moisture. I have seen nearly as good varieties on the white soil, but the white soil which hears the best Muscat is confined to a very small district.

The complaints we have against the Muscats are generally that they do not set well. The berries especially seem to drop off or do not set at all in Springs when the nights are very cold and the days are very warm. I think, therefore, unevenness of temperature is a great drawback to the Muscat. But if in Spring time we have even temperature during the day and night, and not too heavy a fog, or too heavy a dew in the morning, our Muscats set very well.

For instance, this year the Muscats have set very badly well in the red land, the yards, while on the white soil we have a great many complaints, the reason of which I suppose is that one soil attracts more the heat of the sun than the other soil. Evidently the white soil gets warmer, and therefore the temperature in day and night varies much that injures the grapes, but I think there is some other cause for it, perhaps some direct disease or sickness of the flowers of the grape that has not yet been discovered.

I have been looking this Spring in several vineyards, and I am satisfied that there is something in the matter of the flowers themselves, as a reason why they do not set the grapes well. Of course the better the vegetation of the vine generally, the better the grape sets. Where the vegetation is otherwise good the berries set there best, and where the vegetation is poor the berries do not set so well as on sandy soil the grapes do not set so well as on red and white soils. I think the principal cause is that the sandy soil is apt to dry out quicker than the red and white soils, and I believe there is more organic matter in red and white soils than in sandy soil. I have seen much of the fruit of the sandy soil the grapes do not set so well in some years as in others. In the red soil I think there is a good deal of clay, which tends to retain the moisture, and my opinion is that the radiation of heat is kept up better on clay than on sandy soils. In the climate and soil I said the sandy soil is both a higher and lower degree of temperature near the surface of the soil than on clayey soils, and I would draw the inference that on sandy soils therefore the climate would be different from that on red land. It is a much drier climate and soil. I think the sandy soil as a rule contains much less organic matter than does either the red or the white soil;

but, if anything, the grapes are usually more highly flavored on sandy than red or white soil.

The Muscat is very successful down in our county, provided it is well attended to, and the ground kept moist all the time; but if the ground is allowed to remain dry for a week or ten days, as has often happened, owing to some break in the ditch, or some other drawback to irrigation, the Muscat is not a success.

Mr. Wetmore—Do you not attribute that to the fact that you had been irrigating, and the roots kept near the surface and did not have to go deep to seek for moisture?

Mr. Eisen—Well, there is a disease caused by that, which we call the striped leaf—the leaf turns yellow, and remains greenable, and the leaves are each leaf. It has a mottled or striped appearance. I think that is caused by the vines sending out surface roots, and afterwards the hot weather comes and the roots near the surface get burned, and the vines therefore are insufficiently nourished. Muscats do well in our county under slight irrigation. In some years we have not irrigated for years. It took many years of irrigation to fill the ground with water and moisture, and now for a district of some ten or fifteen miles all around we do not need to irrigate at all any more—neither in winter nor in summer, and the vines are doing in the canals is sufficient to keep the ground moist, and wherever we scratch in the ground we find the moisture within two inches of the surface. For instance, in Butler's vineyard, he has not irrigated, I suppose, at all for two years, and the moisture is within an inch or so of the surface, and the vines are doing very well, for which is that that part of the country was irrigated first. Undoubtedly when the white soil has been irrigated as long, the same thing will take place there.

The ground will remain moist for years. I suppose the moisture has penetrated down to the hard pan, for as deep down as we choose to go we find moisture.

We find the ground moist under the surface, but I would not advise anybody to plant Muscat in our part of the country where the ground could not be kept moist all the time. There is no reason why anybody should do so, but we do not grow any grapes at all in the alkalis. We have sandy red soil, sandy white soil, and some sandy soil which is neither red nor white.

The finest raisins which I have seen anywhere were in Butler's vineyard, but they were not several years. By taking up a little dirt in your hand and squeezing it, it will stick just like putty. When the soil gets in such condition, it is then fit to receive the Muscat grapes.

The question has been asked me, if the Muscat vine continue to bear as they have for several years, why they do not get the full bearing capacity, or do they show any sign of decadence? I would reply, that the heaviest crops I have seen is when they are five years old, and again when they are eight they had a very heavy crop. I think they bear heavy some years and then may bear a little less for several years. They bear as heavy again as at first, but the oldest Muscat vines we have are but nine years old, so it is impossible to get any rule concerning bearing, as the country is yet too young. With regard to pruning Muscats, as a rule, we prune them rather short, leaving about eight or ten inches on the branch with eight or nine side branches, and those side branches trimmed down to two eyes. Both the principal cane and the side branches being part of last year's growth. In using the trimmed side branches, I mean laterals. The best way and the most successful way to grow the fruit, and which yields the largest berries, is to allow the vines to lie on the ground. Of course you cannot do it during the first two or three years, during which you are compelled to irrigate, but after that you can do it because you do not need to irrigate at all, and do not think any vineyard in that neighborhood needs to be irrigated more than three successive years. At present

the whole country seems to be filled now with water. And that is true of ten or fifteen miles out from the colonies. We do not need to irrigate any more than one or two years now. Eight or nine years ago it was quite different. Then we could put water on the soil every week for five years and the ground did not show any sign of filling up with water at all.

Now it is not needed to irrigate in summer or winter. It would be an object to the grapes. Of course water is always running in the ditch in the neighborhood and that is sufficient to keep the ground supplied with moisture all the year round.

The presence of clover and alfalfa fields apt to encourage the army worms. The army worm originates with alfalfa and lives on the alfalfa, and sometimes it takes a notion to travel from the alfalfa fields over to the vineyards.

The Vine Hopper does not attack the alfalfa, it feeds on alfalfa in the winter time. We have not been troubled with beetles in our neighborhood. I have seen in the room some specimens of beetles on alfalfa in a small bottle, but that is not the beetle that has been spoken of, which troubled the vineyards at Minn and at Maryberry. This beetle is at times as large and with a very hard body.

Mr. Wetmore.—This question has often been asked me if the presence of alfalfa is dangerous to the vineyard, and if so how can you protect the vineyard. I have seen some vines planted along the borders, wherever there is any danger, the cyprus to form a hedge, and surrounding such vineyards with orchards and in this way to some extent isolate the vineyard.

Mr. Eisen.—If the army worm is attacking the alfalfa, the best way is to mow the alfalfa down and flood it. To prevent its crossing to the vineyard there should be a road between and by keeping the road well plowed the army worms would fall down in any furrow and be lost in the ground and not be able to crawl out of it.

They have had the swing worm very badly in some places, but I do not think there is any need to have it at all. By planting some verbenas beds the worm can be kept in the spring where it lays its eggs.

Mr. Wetmore.—I have been asked a great many times the difference between the Gordo Blanco and the Muscat of Alexandria, assuming to think there is no difference at all.

Mr. Blowers.—All my vines originated from cuttings imported by Mr. Hrazzthy's father in 1862 with the exception of a few vines that I had imported from the same vineyard, from Malaga, some 17 years later. Those are the only varieties I have. I know the Muscat, but a great many Muscat vineyards are called Muscat of Alexandria. The difference conceived to be that the Muscat Gordo Blanco makes a closer bunch and a rounder berry. The skin is softer and the pulp is not quite so hard. The berries incline to be a very dark in color and not nearly so green when it is ripe, and I think not quite as long as the Muscat of Alexandria. If the Muscat would set as well as the Muscatel, the difficulty would be obviated, but one very important difference is that when you come to dry them, the Muscat of Alexandria loses the bloom very rapidly. The bloom comes off when you come to dry and pack them. But the Muscatel does not lose its bloom. The Muscat of Alexandria has to be dried a little more than the Muscatel before it is fit for keeping in condition under the same condition of ripeness.

Mr. Eisen.—I have grown the Muscat of Alexandria and the Gordo Blanco in the same vineyard, side by side. In fact, some Gordo Blancos were mixed with the Muscates, but I always found the greatest differ-

ence between the berries. The Muscat of Alexandria would ripen about one week before the Gordo Blanco, and that in itself is of some importance, perhaps, if there is an advantage to have the raisin ripen as early as possible; but the Muscat of Alexandria does not yield by far as much as the Muscatel, and I advise everybody in my neighborhood to plant the Muscat and then plant enough Muscatel to cover them in this respect. I think it may not be right to put the best grapes on top, yet we know they all do it. I believe the Muscat and Gordo Blanco are two distinct varieties of grape, and we have some berries which are between the two. I think it could not really be that they were Muscat or Gordo Blanco. Perhaps they were hybridized in some way. I believe that some vines develop a berry of a different shape. There is the Cannon Hall Muscat, which is very similar to the Gordo Blanco. I suppose there may be a number of different varieties whose varieties are not very well marked.

Mr. Feely, of Santa Cruz Co.—I have the Muscat of Alexandria and another grape which I obtained a few years since, the Larga Bloom. In some places these two varieties grow quite contiguous to each other, but they are distinct varieties clearly. I sell most of my shipping grapes to parties who ship to Chicago, and I call to Mr. Earle and Mr. Brewer at Sacramento; and I recollect one year I was enabled to sell the Larga Bloom and some Muscat. I don't know when I could not sell the Muscat. Those varieties were larger—that is, the bunches were larger and better filled up, and they did not fall off as much in the setting. The berry was firm, and undoubtedly would carry better.

Mr. Blowers.—I have seen the grape which is called the Larga Bloom. With regard to it I could not say. I have it as it came labelled. Certainly it is a very fine grape, a fine raisin grape. I have not discovered their distinctive differences. I have not had them long enough. Probably when they are a few years older I can tell better. I would not like to make the assertion that there is no difference between a Muscatel and a Larga Bloom, but I have not decided that there is a distinctive difference.

Mr. Feely.—The grape that shippers have sought in my neighborhood for shipping, has been the Flame Tokay, because of its good carrying qualities, and its great beauty. It grows successfully in the San Joaquin mountains, in the moist soil which we have there. It is generally found to be able to get at least half a cent a pound more than for the other varieties. We also have the Verdal, the white grape; it is also one of the best carriers that we have. I don't know whether it is cultivated in the United States, or whether it is coming from France, or under that name. I think it is grown mostly south of this, but it certainly is a very good shipper and a prolific bearer. The Black Ferrara is also grown down there to some extent; the Cornichon also to some extent, and perhaps those are the link of the shipping grapes that we have in that section.

Mr. Blowers.—In regard to shipping grapes, I am told that the demand for black grapes in the East is very limited because they come in direct opposition to the Concord and other native grapes. I am told there where they can lay down at a much less price than our grapes, or, at least, at as low a price, and the shippers generally recommend growing the white grape for shipping East, I mean shipping to the extent of the grape market. I have seen a good red grape, such as the Tokay or Emperor, the Black Ferrara is undoubtedly a good grape, good for carrying long distances, and its color would be the only objection to it; but for shipping to the interior where they do not grow grapes, Montana and other places, the Emperor would be as good a grape as a man could grow. The demand for the Flame Tokay is perfectly unlimited. It could be shipped in much larger quantities than we do at the present time with good results. There are some other grapes, such as the Emperor grape, which are being developed as we go along, and that is, in our country it ripens a little later. Probably it would do better in Fresno ripening ten days earlier, and there it would not be so subject to early rains.

Mr. Eisen.—It does not ripen at all in Fresno. It is a very poor grape.

Mr. Blowers.—But it ripens usually with us from the 1st to the 20th of October; sometimes it is earlier; but as a rule it carries the best of all the grapes we have, after the first rains; but for the Tokay and Emperor we have a greater demand than for any other varieties.

Mr. Feely.—I have a few of the Emperor, but our location is a late one so they do not set well with us, and do not ripen up, and I have also the purple Damasas that grows well with me. It requires a very sheltered location and warmer weather when they are in blossom for them to set well. Our location is a late one, that where the vine is exposed to the north wind the grapes are apt to blight after the blossoms are set, but we have locations in the mountains and many canyons which are sheltered by surrounding hills or belts of timber, where the southern sun comes in, and in which the Muscat generally does well. In fact I have never lost a crop of Muscats, while some of my neighbors whose vineyards are more exposed to a northerly wind, succeeded very poorly in raising them.

Mr. Wetmore.—Gentlemen, I would like to hear a discussion upon the question; does it pay to raise a grape on account of its quality, or is it valuable simply from appearance? It has generally been the case, as we all know, that the market requires only a good appearance for a grape. Is the taste of the market changing? It is going to be profitable to raise a grape on account of its superior qualities as an eating grape?

Mr. Blowers.—I think the main question is what will carry well in the San Francisco market.

Mr. Feely.—I think in every large city people buy fruit on account of its appearance. A large, fine bunch like the *Flaming Tokay* attracts the eye favorably; and fruit is purchased and paid for before it is tasted. So long as it pleases the eye in large cities they care little as to whether it is finely flavored. In many cases grapes are bought for table ornamentation. If we can get grapes that combine the different qualities of beauty and flavor, of course they will sell well, but you must realize that in the future looking grape to Chicago, and though of superior quality you cannot sell it as well as a large, fine, showy grape. It takes a great deal to educate the taste of large cities, my experience in shipping grapes for 15 years is that large, showy, fine looking grapes sell better in the sidewalk, all the best. In 30 varieties of grapes I have many small, rather inferior looking grapes of very fine flavor, but if I should send them down to the Fruit Market on Washington or Sansone streets, they would not sell. I have seen a small grape like the *Flaming Tokay* or *Cornichon*. I can't get my money out of them. If people would demand grapes for their eating qualities we would have an immense market.

Mr. B. West.—My experience in the San Francisco Market is that the grape that we grow best at Stockton is what we call the *Black Prince*, or *Rose of Peru*, and that, I find, sells best in this market and better than any other at the East. I raise a great many black varieties and I find that they sell better in the East. I have told me that the objection mentioned by Mr. Blowers is being obviated in a great measure. If they can get a good, firm black grape, they like it. It may not be as in Chicago, but further East the *Ferrara* sells better than the black grape. I have seen a red grape that gets there in better condition than any other grape. It has a very thick skin, and is a grape that does not drop from the stem, and it is rather a finer quality of grape than the *Tokay*; and the *Emperor* and *Adriana* seem enough to get a fair return for the soil. I believe, as Mr. Feely has said, that people eat with their eyes and not with their mouths. I have tried to ship the *Rose of Peru*, East, but it didn't carry well. The *Mission* carries far better than the *Rose of Peru*. I shipped some eight tons of the *Mission*, once, to New York and

they all said it was a good flavored grape, but was a smaller grape than they had, and yet it kept better than one would suppose from laxness of the grape, but it would not sell. There would not be any quality. They only bought for appearance.

Mr. Blowers.—The Eastern limit of the *Rose of Peru* and its carrying quality is Denver. It is too soft a grape for us to dare ship it any further than Denver. We have a large amount within the range of Denver, Washington Territory, Utah, Oregon and Arizona for our thin-skinned and more highly flavored grapes, but to succeed at a distance we have to take thick-skinned grapes.

At a market we have British Columbia, Oregon and all that region covered by the Northern Pacific road, which will be an entirely new market, with the exception of places to which grapes have been shipped by steamer. Then Utah is growing very rapidly, and all that region north of Utah is filling up with population very rapidly. There has been a wonderful increase in the population in the last two years, and they have absolutely no fruit, except that which is shipped from here or the Eastern States to supply the market. Even Minnesota and Iowa always have been fruit raising States that cannot be shipped clear to the East, and that is why I claim that the *Tokay* is a good grape to people that don't know any better. It looks well, and is so much superior to any grapes that they can get laid down in the East, and as a flower grape and I live, we will have a good demand for it.

Mr. Coates.—The Cornichon is raised considerably around Napa, but as a rule it does not bear well, though it is considered the best of the grape raisers in the very fine grape. The *Flaming Tokay* bears the best and sells the best.

Mr. Wetmore.—Then it appears that certain qualities are necessary for a good table grape, which can be shipped East. You must have a variety that is not subject to be bruised or to rot on the way. What you want is to have shipping grapes of superior quality, and which will bear well, for if we can find a grape of good flavor that will ship a long distance and will set well, in the cultivation of that we will find our profit. We have to get the doors, and as for the more delicate varieties of grapes, and if only remains to know where those varieties will succeed best in the State, because I believe there is a very large market for good grapes.

Another question which I will suggest for deliberation is, how far are we liable to competition in table grapes from the vineyards of Arizona and New Mexico? I think that is a vital question, because many are planting vineyards with the idea of selling their grapes to Eastern markets. I have seen a large number of vineyards in the Northern States of Mexico? During the last year, large numbers of vine-cuttings have gone into Mexico and Sonora and Arizona, and it is well for those engaged in planting grapes to ascertain to what extent they are liable to competition from those quarters, because those places are nearer the common market.

Mr. Strentzel.—The white berries are the ones which it would pay to cultivate for the purpose of shipping East. In the East an unlimited market could be found for the white varieties, provided the reduced rates of freightage and cartage. Reduction in freight to the East is a vital point that must be looked after. I had a few samples of the grape called the *Champion* which has been produced here. It looks like a very good grape, and has just the tissue of skin which is most advantageous for shipping. The bunches are very long and loose on the stem, and the fruit not evenly distributed. It would be a very valuable grape in California. It can be shipped a very little better, and I think by grafting these plants can be changed so that the grape will be valuable to us. The Muscat grapes are limited to certain locations in the State. Those raised at from twenty to thirty feet elevation on the hills are a little Muscat, and I think, in the future, the quality, and, of course, as you know, our best varieties will find a market, it is useless to produce any but the best.

Mr. Blowers.—My attention was called this last summer to the chances of competition with New Mexico and Arizona by a friend who had lived in New Mexico. He

claimed that certain varieties of grapes would do wonderfully well in New Mexico, and I enquired into the matter and found that they were Eastern varieties and some Muscats. I looked over the meteorological records and found that they have heavy rains in June, July and August, which would destroy the grapes for shipping purposes. A heavy rain in August, of course, would destroy the value of a crop for shipping, although it might not for wine.

Mr. Wetmore.—I have been called upon to send vine to some one, and I have now learned from a correspondent that quite large quantities of Muscats have been sent into that country. Of course it is only in the last one or two years, and they have not yet got any results. I have received samples here of fruits of the wild Arizona vine, growing at an altitude of 6,000 feet near Prescott. Last year, also, I received a sample of Concord grapes ripening at Prescott. There are vines ripening probably something similar to our Muscat grapes in Mexico now. They are said to be similar to them by those that have seen them. I have no scientific information, though, on that subject. Some of us ought to get some grapes from there and see what they are, because if they can ripen the Muscat grape there, they can ripen all the table grapes. In Mexico they make raisins now. I had a lady, of my office the other day, who had a ranch near Tepic, and she was describing three varieties of grapes that grow there, and one of them appeared to be something like the Corinthian from her description of them; another was what they call there the Madeira, and another was similar to our Muscat. They called the Madeira, from that part of Mexico. They actually make raisins there, in that part of Mexico. The Mexican Government during last year has been flooding all those border States and Territories with cuttings from this State. Four hundred thousand went from Sonoma Valley last year, and I have seen the errors of each Territory, part by San Blas, part by Hermosillo and part by Tucson. These were wine grapes and table grapes, and as I have learned since, the Government there has engaged a lot of rooted Muscats from Los Angeles county. Now, I have no objection to the Muscat grape; that is, the southern part of the States, and especially that part of Mexico that lies near Tucson. If they can raise these grapes successfully, it would be a very important factor in the question which is involved here to-day. I don't shall we plant?

Mr. Eise.—I would not call it a failure before we go very much further, because they are planting now very largely in that direct line. I don't know to what extent they might have advantages. Perhaps it is all illusory; perhaps the difference of a few hundred miles don't make much difference in the soil conditions. I have seen some, and it is worth knowing something about. I believe they can raise them in Arizona and in New Mexico, and in Mexico and near Tucson. How much they can raise I don't know. Perhaps they have not water enough, and they can't only raise enough for the home consumption. I don't think we can compete with us in the Eastern market, but that is a question that is easily ascertained.

Mr. West.—I would state that I have sent a great many cuttings to Texas for the past two years, by mail, and otherwise, and the grapes have done well. I have seen that is, the Sweetwater and Black Hamburgs. I would like to inquire about the Almeria.

Mr. Blowers.—Those which I have planted I received from Mr. Wadsworth in 1863, and I have seen them, and sent me by the Bulletin Company. I had assumed its wonderful keeping qualities, but it does not bear well. Where it does bear, its clusters are very large and fine. The fruit is large and beautiful, but in our neighborhood it is entirely worthless from the fact that it does not ripen enough to get a crop more than once in two or three years.

Mr. Wetmore.—I have seen the Almeria growing at Mr. Cralh's. He, probably, has more varieties in one place than anybody else in the State. This year his Almerias have been subject to the mildew common to a great many varieties in the State. Last year they were loaded with grapes, and they were so very fine that I undertook to propagate the vine myself. I believed it would be successful.

But I think it ought to be planted on land where experience shows that we are not subject to this blight, the dropping of the berries; and wherever we are suffering from that, we would not succeed with the Almeria, as is shown by the dropping of the entire load of fruit under the influence of this peculiar season.

Mr. Blowers said his experience with the Almerias was that they did not always form the cluster; that they generally bore well when the cluster formed.

Mr. West.—I was this year by dropping some, and I found that I had the same grape on my place, that I had had for many years, and it labored under the same difficulties, but I think that perhaps in certain localities they will be successful. The grape of the Almeria was grown first around Hahoga, but they found it did not keep well and did not bear it, and it was only at Almeria that it came to perfection. There they raise immense quantities and ship them to England, and sent half a million tons to the United States in 1878. It is quite a success with very long pruning in and in a deep low valley or alongside of a stream, but probably their climate makes it most successful there.

I was asked as to my experience with the Black Morocco. I think that it is the most worthless grape raised in the State. At Napa, I raised a quantity, and I have found they were not worth anything to ship or to eat. A New York shipper showed me some that he had received in from the East. He said: "Don't ship any more here. They are all of the stem, loose in the box. Don't ship them." With ordinary success with very long pruning, and in a deep low valley or alongside of a stream, but probably their climate makes it most successful there.

Mr. Wetmore.—I raised the question because a gentleman in Livermore Valley experimented with carrying out a long cane with his Black Morocco, and his vines this year are a mass of fruit; and it occurred to me that those who have Black Morocco in Napa, the place where I raised them, that vine wants a long cane to bear well. There is a mooted question as to the possibility of making currants in this State with the Santa varieties of currant grapes. There are some samples here of black and white currants, and as they seemed to do best in the State, I would call on Professor Eise for a few remarks.

Mr. Eise.—I have grown two varieties of Santa Corinths, one black and one white. I have seen the black grow in red clay soil, and the white I have seen grow in different kinds of soil. The black did very well the first year. The white did not.

Mr. West.—The black did very well the first year. The white did not. I have seen the black grow in red clay soil, and the white I have seen grow in different kinds of soil. The black did very well the first year. The white did not. I have seen the black grow in red clay soil, and the white I have seen grow in different kinds of soil. The black did very well the first year. The white did not.

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Corinth that is not so old. I believe the other vines are not more than four or five years old. Some years they grow closer than others, and some bunches are not as close as the other years, but still they are not very close. The long bunches with the scattering berries were pruned very long, and the close bunches came from the vine that was pruned very short. I believe down to two eyes. I don't believe, though, that the Corinth should be pruned very short. I think four or five eyes should be left on a very cane, and that would be more successful. I believe, also, the Corinth should be staked. I think a very good plan is to carry up some very long branches and stake them, and have the laterals pruned to two eyes. And when they were pruned that way, I have seen very heavy crops and very close bunches on the Corinth. I would recommend planting the White Corinth on the plains, at least. I don't know whether it does very well on the mountains.

Mr. Blowers.—I have only one variety of Corinth, and it is the white variety. It bears very poorly with me on average years. Some years I have a fair crop. This year I have scarcely any crop at all, while right alongside of that, I would have twelve or fifteen tons of Seedless Sultana of the same age. But I would not have over three of the Corinth on any place, and I would not let them grow older, but I do not know.

Mr. Strutz said that he had been interested since 1860, to some extent, in Corinth. That the vine was a healthy, growing vine, free from mold—more so than any other variety that he had. They began to grow very early, and they had gradually increased, and you would find a larger berry inter-mixed with the small ones. But his second crop was now free from that mixture, and the grapes were all of the same even, diminutive size, which showed that the uneven sized fruit was in consequence of hybridization, and would be avoided. That there was no doubt that the manner of our pruning was improper. All the vines were pruned low. They should be pruned longer, or terraced, which would be the proper way of raising them, and they should be planted separately from each other, and the bunches hung for awhile, then dried perfectly, and then put in the stock, which was not the case with any other grape that he knew of. In that respect there was no grape which came so near perfection as this same Corinth, and for that reason it should be cultivated.

At the same time, though, we had no better variety which would be more remarkable in the Seedless Sultana, which appears to do so well in the majority of instances wherever cultivated; the fruit being larger and ripening earlier than the Corinth, and drying perfectly, and what is not converted into raisins can be used for wine and brandy, and the seedling can be stock, as with the other varieties of grapes; for, even when dry, they were a more available grape. In his opinion, the Seedless Sultana would make a product which would take the place of the currant in the market, because it is a larger grape, and it supplies the market with a good table grape. He thought that we had not only to fear New Mexico and Arizona as our competitors, but also the Southern States. In Georgia and other places South, as good grapes and of as many varieties, could be raised as in California. That we were unimpaired in our own grapes, provided they could be sold cheap. But our chief market would be the Pacific Coast, among the Aleutians and further north; and that if we had a sufficient quantity of fruit, there was no doubt about having the market. He hoped that our fruit would eventually find a landing on Wrangel's Land.

RAISIN MAKING.

Mr. Blowers.—The raisin subject is one so much of detail, that it does not seem possible to discuss it without special preparation. A grape to make a good raisin should be large, thoroughly developed and sweet. The only variety which we have

that makes a good, clear raisin is the Muscat family of grapes. Whether the Muscat of Alexandria will succeed best in one locality, the Muscatel Gordo Blanco in another one, the Large Bloom in a third, will have to be determined by experiment. In my particular locality, the Muscatel Gordo Blanco in the one which we find the most successful. The Cannon Hall Muscat in that neighborhood sets very rarely. While it does you have very large fruit, which will make a very fine looking raisin, as a boy of grapes, as Professor Eise says, but it so unfrequently raises a good crop, that it cannot be considered successful with us. The raisins should be completely ripe—in other words the juice ought to weigh at least 25 per cent. sugar. The grapes should be handled as little as possible; and, for that reason, should be picked directly on to drying trays. The trays most used are two by three feet in size, and when filled should be exposed directly to the sun with a southern exposure by sending men ahead with a shovel to make little piles of earth on which the trays are laid. When the grapes are about a half to two-thirds dry, send men along, each second man leaving an empty tray, and they give it a centrifugal motion, thus turning the grape to lay it back in the position it was before. That is all the turning it needs.

When fully dried, say two-thirds or three-fourths, or sufficiently dried to put in a sweat box, we send an expert around, and he with his men take off several of the largest clusters, that are not sufficiently dry, and the balance are slid into a sweat box sufficiently large to admit of a few men getting in, and shaking off the tray, but they are slid off the tray.

Between every twenty-five or thirty pounds of raisins there is placed a heavy sheet of Manila paper, so as to keep the layers from coming together when we pick them, and so as to keep out the dirt and dust and broken pieces of wood, and get them through the eye of the wind, and keep them from intermingling with the layers below; and after we put about one hundred and fifty to two hundred pounds in these sweat boxes they are stored away in our sweat rooms until they are equalized.

When the grapes are two green will dispense with their surplus moisture, the paper absorbing it and those grapes that were a little too dry.

Then the poor grapes are taken out and put up as cooking raisins, and the balance of them, the poorer grapes having been on the inside, the number ones are placed in boxes, and the boxes are placed on the grapes placed on top of the box, just from the very fact that the gentleman puts the whitest side of his shirt out. He wants it to look best, and we find that they keep very much better if we use a heavy light paper, that is almost impervious to air as a wrapping paper, using five pounds of grapes to each layer.

A quarter is one layer. A half box is two layers and a whole box four, and each layer absolutely five pounds full weight. I have yet to hear a complaint brought against any of our raisin growers of California that they give light weights. I never will.

The earliest I have ever begun to take Muscats to make a good raisin was on the last day of August; usually between the 5th and 15th of September. One year I was as late as the 23d of September in picking. I had a very good crop, and in the next year, on account of a cool summer; that I think, was three years ago. I think to make raisins, the grapes could ripen as late as the 10th of October, and yet make a good raisin. Of course, they would have to be picked in case of a coming storm. We have experienced a great many cases of a threatened storm, we take these trays and pile them up in tiers and cover them with an empty tray, and in fact, they are then as well protected as if in the house. I had to cover my tiers four times last year. After a heavy rain which wet the tiers and the boxes, and the grapes as hard to dry a raisin grape out of doors, and so we take and place them in a dryer, and subject them to a temperature of 100 to 125 deg., as a maximum, Fahrenheit, giving them a free circulation of air, and in a few days they are ready for the "sweet box". We put the grapes in the same form in which they were picked. If we can get them half dried and then turned, it facilitates

tates the grading. We always grade them as we pack them. Those that are not sufficiently good to go in layers, are thrown aside and then through a revolving wheel, which cleans them in a few minutes of the stem, and they are cleaned, ready for market, as loose raisins. I do not know that any experiments have yet been made in the State, in drying juicy wine grapes for subsequent use and fermentation, in other words making the product so that we can send our wine to market in bags. That class of grapes, I have not especially experimented with. I have shipped East the Seedless Sultan and Muscatel varieties for that purpose, but have not yet had a report from the wine-dealers of the East in reference to their success. At that time, they were so sanguine that they were willing to buy 100 tons of the dried raisins, but I was waiting for their order, and they were waiting for my samples—so the order did not come, and I finally sent them a sample of 100 pounds, so that they will see and I will finally know in a few days or a few weeks of their success.

Mr. Wetmore.—I would suggest to you gentlemen, that I would like your Zinfandel wine making grapes, and subject them to a test to see what kind of a wine can be made out of them after they have been dried; for this reason. There is a market for just such grapes in Marseilles—France. We just send our dried grapes. They are now making a fine variety of wines in France, out of the grapes that come from Corinth and from Greece and Asia Minor. Now, if the qualities of any of these red grapes could be preserved, even though they did not make a fine order of wine, still the quality of the grapes, and we could find out in time just what we could do with our extragrapes. I think somebody ought to try that.

Mr. Blowers.—I believe Mr. Krag has dried the Muscatel, and if he could succeed with that, I know the reason why he should not succeed with a red grape.

Mr. Wetmore.—I want to see if we can succeed with the red grape. When a grape gets very ripe, it acquires a "porty" like taste. Where the red grape dries on the vine, the grape has a raisin-like taste. Now, query, why do you think these grapes, before they have matured to that extent, dry them and pack them, and in so doing preserve their bouquet?

Mr. West.—With regard to the White Corinth, I would say that A. H. Hooper, of Napa, had a large vineyard of this, and he has been endeavoring for the last 12 or 14 years that they have been bearing, to make his vineyard profitable, but they did not pay. Mr. Whitney has also as much as 6,000 or 6,000 vines planted, at least he told me he had some large quantity, and he has found it unprofitable. I would say that pretty thoroughly tried in the northern part of the State. I don't know how it would succeed south, but north it has not been a success, that is this White Corinth which you have exhibited as the same grape.

In response to the query from Mr. Wetmore, Mr. West said:

The Verdal is not a very valuable grape with us. It is a very late grape, but we have some grapes which are later which would be more valuable. For instance the White Malaga is late. The White Malaga is a good bearer, and a good shipping grape. The Almeria I have not seen, except upon mountain land.

Mr. Blowers.—I have seen it; but it is not the same grape at all.

Mr. Wetmore.—Gentlemen, I will commence by pointing this discussion to the Paris market, you rarely see any eating grape but the Golden Chasselas. It seems to be the taste of that market to admire a white grape with a thin skin, and juicy and delicate, and not very sweet, containing, I should think, sixteen per cent sugar. The reason why they like it mainly is a table grape, because it is not fit for a wine grape. It does not make sugar enough, except in the extreme south of France. They say it is a good-for-nothing wine grape. In this State it gives sugar enough. Then there is a variety called the Chasselas, called also the Boulders. That is shipped from the south of France and the Mediterranean coast to the Paris market, and is said to be their best black variety. It comes in about the time of the early Chasselas. I don't think that grape is in this State at all, except in some samples we have imported. I

have some, and Mr. Horatio Livermore of the Natoma Company has some. I don't know why it has not been propagated here. It possesses good shipping qualities, is a choice grape and is said to make good wine. I have some grafts growing of this vine on the same year's planting, and they seem to be very sturdy and they have a crop of fruit already. It is a vine worthy of attention and study, provided a grape coming in at the same time as the Chasselas would be of value in the market. It is said to be one of the very best eating grapes, and it has very few seeds. It is from France, and those who plant it can look to it also as making a fine wine, and it especially wants dry land.

It does not do well on moist lands; to develop its qualities well, it wants hill slopes and dry lands, and when they say dry land, they mean very dry land, so I judge the driest land in this State, where any one undertakes to raise vines at all, will suit that vine well, provided it is good soil. That is worth your study. I don't see why we don't sell Chasselas and why there is not a demand for it. It all goes into the wine vats; it is a choice eating grape; that may be true; but in France they have so few grapes that they can eat. You never see any Muscats nor late varieties, except in the extreme south of France and only in the driest parts. They must have to import their ripening grapes, or none at all, for their market.

THE GENERAL COMMITTEE.

I will now appoint a committee to take charge of the wines and brandies which have been sent for exhibition here during Wednesday, Thursday and Friday mornings, and I will appoint for that purpose Mr. Pomeroy, Mr. Egan, Mr. Hartung, Dr. Strentzel and Mr. Porta. But, gentlemen, we don't bring wine here for people to drink. We want to examine these critically and carefully for the purpose of comparison, and they will be for that purpose, under the control of the committee, which will select each morning such wines or brandies as they desire for examination, and I would suggest that some of our wine merchants would find it greatly to their advantage to be present, and others who desire to know something about the qualities of our wine, had also better attend. Very few of the courses are of superior excellence; most of them are young wines. Some of them are mere curiosities in the way of color, or brought to show some promising quality contained therein, and not to please those who are merely consumers. I would say that our merchants would be present to aid us with their ideas and advice in our consultations, expressing themselves as to the value and properties of the wines. We learn more in that way than we do in any reports, or any formal discussions, and during our morning sessions we ought to get more good out of our consultations than even in our formal discussions, because we meet one another on practical ground in a private way where men are not afraid to express themselves. To-morrow morning I hope there will be some samples of raisins here for examination. I have some at my office that were raised in San Diego. I hope these informal parts of our meetings will be of more real value than even our prepared discussions.

After a discussion between Mr. Klee, Mr. Ferry, Mr. Egan, the Chairman as to whether the Verdal grape raised in Santa Cruz mountains was the true Verdal or not, the Convention adjourned until eight o'clock P. M.

EVENING SESSION.

After a few introductory remarks by Mr. Wetmore, it was announced as the subject of the evening's discussion, the selection, planting, cultivation and maintenance of vineyards.

In consequence of the illness and absence of Mr. C. H. Crabbs, of Oakville, his paper on the above subject was read by the Secretary, as follows:

H. W. Crabbs on Selection, Planting, Cultivation and Maintenance of Vineyards.

MR. PRESIDENT, LADIES AND GENTLEMEN: I am pleased to see that those intending to plant vineyards begin to realize the great importance of knowing first, what they must plant, in order to make it a success.

A mistake in this cannot be rectified in a day, nor without great expense. I am daily asked the following question: Which vine will please allow me to answer in a manner as briefly as possible: First, what kind of land would you select for a vineyard? My first choice would be that deep, loose, red soil, honored with the growth of large red and black grapes, and they are the vines that grow large thrifty white oaks, and third, the live oak, chemise and manzanita lands. What is the best location? That which lies in the so-called warm belt. Every valley having a range of high hills on one side may be. In that belt along the sides of the mountains the whole length of the valley, vegetation but rarely suffers from spring frosts. What varieties would you plant? That depends entirely upon the locality. Anywhere in the coast counties within the influence of the coast winds, it is particularly bad, and it is not safe to plant any dry wines, although sweet wines can also be made with profit at the latter end of the vintage in favorable seasons. The whole interior of the State might possibly for one or two weeks in the commencement of the vintage, make dry wines, but after that it is impracticable, and for all to attempt to make anything else but brandies, sherries, syrups and sweet wines, and consequently should plant those varieties best adapted for those purposes. Place your locality in comparison with a similar locality and climate in any other part of the world, and you have rated there. There is, however, this difference: Our soil and atmosphere not being refreshed with summer showers, the same variety is likely to contain here a larger percent of sugar, but less acid and flavor, just as our apples have less acidity and spiciness than they are in the East. The reason why the Raisins are not so aromatic here as it is on the Rhine. It requires more moisture, should be planted farther north, most likely would fully develop its true character in Oregon. They have experienced many failures in this country, and it has become a science with them, and we should profit by their experience. A life time is too short. It took us twenty years to find out that the Mission was the cause of all our troubles. It took us fifteen years to find out that for dry wines the Malvasia was worse than the Mission. We were the most fortunate with our dry Muscat. We succeeded in disgusting everybody with it in less than ten years. At this rate we would find out very little in a century. We need a little reasoning, and what you call came like a blessing in time of need. Without it we would not have any market to-day for claret. Give the dealers only Zinfandel and a little more color, which we will soon be able to do from the many deep colored wines and brandies, and you will hear no more complaints. We shall find that such a noble vine has been sacrificed, drowned and lost in the vat in order to reduce others from the still. Our much lauded claret is of only secondary consideration. It is the variety that gives the quality, and that is the backbone of the wine we have in the business. You might as well expect blood from a turnip as a Chablis from a Binger or a Lafite from a Hamburg. Would a New England lady use a sweet apple for a pie if she could get a Superior, or a New York man use a Jaconing for cider if he could get a Harrison?

What is it they call Black Pinot in Solano county? It is the Malvasia; does not resemble the Pinot in the least. Neither does it correspond with any Malvasia described in any of the books. The people of Solano are making a great mistake in planting it or selling it for a Pinot, unless intended for market as a table-grape.

How will the Mission do for sweet wines? It is too late. A good sweet wine grape should be planted by the first of September, the middle of October. The last four years it has not reached twenty-four per cent before the rains washed the color out of it. Where did the Black Burgundy come from? I found a few vines of it in a vineyard six or eight years ago; made the grapes into wine which at once convinced me it was some-

thing valuable. On my soil it is a good grower and bearer; ripens its fruit and wood early; from its leaves its crop is cut off first, when the B. B. P. or Pinot, and the Chablis on each side of it were bitten black. I hope it may prove as valuable to us in the future as the Zinfandel has been in the past. Its wine will stand about one-half as long as the Pinot, but its color or viscosity. Some call it Petit Pinot, but this vine is a larger grower and bearer than either the White or Black Pinot, both of which I have, but very unpromising so far, especially the Black. The White Burgundy is a good grower and bearer, but from which is made the finest wine that France produces—the famous Chablis.

What would you plant for Claret? Zinfandel, Mataro, Carignan and Chablis are about the purest type of Claret grapes, and all good bearers. Then I would add the Malbec or Gamay tinta which more color was needed. The Burgundy, Chablis Noir and Trousseau can make a finer wine, a high flavored Burgundy; all of these are good bearers. The Grenache is a good vine for Claret, but it is not so good as you have not yet made wine from the Cabernet Sauvignon nor the Petite Sirrah, both of which enjoy the highest reputation in France. So far, they are very small bearers, and must necessarily be a high-priced wine in comparison with the others. The Pied de Perrier, Gamay tinta, Lenoir, Grosver Blanc, Blauer Portugieser, B. Burgundy and Malbec are triple cutters and from fair to fine quality, all good bearers except the Malbec which is subject to coulure in unfavorable seasons. There is also the Taunat, a beautiful wine, but it is not so good as the others in its bright crimson color and the great abundance of its tannic properties. The sample on exhibition is not a fair test, it being made from grafts cut the same season in Europe and the grapes were ripe.

What would you plant for Burgundy? Yes; the Semillon, Sauvignon and Muscadelle are good growers and good bearers. The Sauvignon is more delicate, but of finer quality. I see no reason why we cannot make good Sauterne wines in the greater portion of the coast and bay counties, and believe me, they will be better than the ones made, better than Hocks. They would drink them without telling you they were sour.

What other white grapes would you plant? The Solano, Golden Chasselas, Marsanne, Chablis Grise, Long Green, Chasselas de France, Moselle Riesling. The Binger is a good grape, where it will ripen. These are all vigorous vines and good bearers.

The Malbec, Gamay Tinta, Burgundy, Black and Chablis Grise, Trousseau, Sirrah, Cabernet, Pied de Perrier, Grosver Blanc and Chasselas de France are good vines, but they are not so good as you cut out every year, and new ones substituted. All the others pruned with short spurs. The Malbec is the vine called Cabernet at San Jose, Yountville and St. Helena, and the Sauvignon is called White Chablis at St. Helena, and Columbar at Santa Clara.

Would you plant roots or cuttings? If your land is dry and no means of irrigation, roots are far preferable. Trim the roots back to half an inch, and plant with the sprouts and roots in the soil, and moist, plant cuttings, and they will grow on a system of roots and make a better vine. No pruning will be required the first year. The second spring cut back to two buds and keep off all the suckers, and keep the vine straight. The third year cut back to two buds and keep the vine straight. The fourth year leave four spurs, and the fifth year they will be able to hear one long cane, and so on according to the strength of the vine, being careful to not injure it by overbearing while young. About the middle of the first year, cut the trunk of the longest shoot to enable the weaker ones to grow—sprout them before the blooming season, and don't sulphur them till after the grapes are well set.

What is your method and time of grafting? Saw off the trunk as deep as possible, but not less than four inches from the ground, make a cut with a thin chisel a little diagonally across the grain of the wood, and with a hook on the other end of the chisel hold it open while you insert a section on each side, cover the cut with a foot stake and fill up the hole, leaving two

Malaga.

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SEERLESS SULTANA.—That unequalled grape for production now so well known.

85 POINTS.

WHITE CORINTH.—A fine bearer of large clusters of only seedless grapes. Seems especially adapted to the white soil of Fresno.

MUSCAT OF ALEXANDRIA AND MUSCAT GORDO BLANCO.—Both varieties do best in our reddish clay and sandy loam. The Muscat of Alexandria makes the finest raisins, the Gordo Blanco gives the most to the acre, but the raisins have not as fine skin, and a much closer bunch, harder to dry.

I believe that judging from the above list you will agree with me that our climate is, in many respects, similar to the climate of Spain and Portugal, the home of the raisin, the Sherry and Port wine. The varieties which produce those wines do the best with us. What can speak more eloquently for this fact than the loaded vines of Don Zelnho de Castella, the Temprano, the Pedro Ximenes, the Fcher Szagos, the Furmint, the Palomino Blanco and the Doradillo? Our greatest cultivators in Fresno and Contra Costa counties should be to excel in these wines, for which nature has especially fitted our soil and climate. If again we wish to produce lighter wines, like those produced in Portugal and also in Spain, let us then beware not to plant the grapes of Germany and France, nor of France and Germany or other places which are so unlike our own district, but to use it upon those varieties which, in the above Southern European countries, produce their famous lighter wines, and when we have got all that the old world has originated in the way of grapes, and when we have out of them selected the very best for our own especial purpose, soil and climate, then we must not stop and rest, but use all of our energies in improving and producing new varieties especially adapted to the locality in which we originate them. I believe it is in certain districts the old world have become so famous for certain classes of wine—the grapes producing them being especially adapted to a very limited district. With some labor and intelligent experimenting, we should be able to produce as much as they have done, and with such results as obtained in Sonoma, Napa, San Jose, Yolo, Fresno, Riverside and Los Angeles, and especially adapted to these particular localities, why should not these places with their fertile soil, generous climate and climateless sky, be as famous for their wines as any of those places of which Europe now boasts?

"Vibert.....	"15 20 15 20 70	70
"Florence.....	"15 20 15 20 75	75
"Crosquand.....	"15 20 15 20 75	75
"Folux.....	"15 20 15 20 75	75
"Grosgrain.....	"15 20 15 20 75	75
Deacon's Superb.....	"15 20 15 20 80	80
Doradillo.....	"15 20 15 20 80	80
Early Malaga.....	"15 20 15 20 75	75
Empire.....	"15 20 15 20 75	75
Fine Malaga.....	"15 20 15 20 75	75
Furmint.....	"15 20 15 20 75	75
Fisher's Superb.....	"15 20 15 20 75	75
Grosgrain.....	"15 20 15 20 75	75
Hamburg.....	"15 20 15 20 75	75
"Champion.....	"15 20 15 20 75	75
Gandy.....	"15 20 15 20 75	75
Don Zelnho.....	"15 20 15 20 75	75
Gandy St. Galmier.....	"15 20 15 20 75	75
Don Zelnho.....	"15 20 15 20 75	75
Grosgrain.....	"15 20 15 20 75	75
Hortville.....	"15 20 15 20 75	75
Hungarian Green.....	"15 20 15 20 75	75
Malaga.....	"15 20 15 20 75	75
Joanne Chateau (earliest grape).....	"15 20 15 20 75	75
Journeau.....	"15 20 15 20 75	75
Kakor Blane.....	"15 20 15 20 75	75
Lady Downs.....	"15 20 15 20 75	75
Malaga.....	"15 20 15 20 75	75
Muscato.....	"15 20 15 20 75	75
"Hamburg.....	"15 20 15 20 75	75
Rio.....	"15 20 15 20 75	75
Cannon Hall Muscat.....	"15 20 15 20 75	75
Mrs. Prince's Black Muscat.....	"15 20 15 20 75	75
Muscato Alexandria.....	"15 20 15 20 75	75
"Gordo Blanco.....	"15 20 15 20 75	75
"Precioso de Madeira.....	"15 20 15 20 75	75
"Bouge.....	"15 20 15 20 75	75
"de Puy de Done.....	"15 20 15 20 75	75
"E. B.....	"15 20 15 20 75	75
Malvise de Puy de Done.....	"15 20 15 20 75	75
Malvise a gros grains.....	"15 20 15 20 75	75
Muscato.....	"15 20 15 20 75	75
Mill Hill Hamburg.....	"15 20 15 20 75	75
Rakor Blane.....	"15 20 15 20 75	75
Mierced.....	"15 20 15 20 75	75
Menestre.....	"15 20 15 20 75	75
"Bouge.....	"15 20 15 20 75	75
Merlot.....	"15 20 15 20 75	75
Marellaise.....	"15 20 15 20 75	75
Maxence Blane.....	"15 20 15 20 75	75
Palomino Blanco.....	"15 20 15 20 75	75
Pondichery.....	"15 20 15 20 75	75
Purple Chateau.....	"15 20 15 20 75	75
Petio Ximenes.....	"15 20 15 20 75	75
Pravise de Frontignan.....	"15 20 15 20 75	75
Purple Chateau.....	"15 20 15 20 75	75
Pinot Noir.....	"15 20 15 20 75	75
Pinot de Perdre.....	"15 20 15 20 75	75
Riesling.....	"15 20 15 20 75	75
"Johanniberger.....	"15 20 15 20 75	75
Grey d'Isle.....	"15 20 15 20 75	75
Grey Long River.....	"15 20 15 20 75	75
Rose of Peru.....	"15 20 15 20 75	75
Rose d'Isle.....	"15 20 15 20 75	75
Reeves Muscadine.....	"15 20 15 20 75	75
Red Chateau.....	"15 20 15 20 75	75
White Cornelian.....	"15 20 15 20 75	75
Red Hungarian.....	"15 20 15 20 75	75
White Hungarian.....	"15 20 15 20 75	75
Zahai Skaukski.....	"15 20 15 20 75	75
Seedless Sultana.....	"15 20 15 20 75	75
Shiraz.....	"15 20 15 20 75	75
Shiraz or Heritage.....	"15 20 15 20 75	75
Temprano.....	"15 20 15 20 75	75
Traminer.....	"15 20 15 20 75	75
Misto Musque.....	"15 20 15 20 75	75
Vatic d'Isle.....	"15 20 15 20 75	75
Vidal.....	"15 20 15 20 75	75
Verdelho.....	"15 20 15 20 75	75
Verdelho.....	"15 20 15 20 75	75
Verdelho.....	"15 20 15 20 75	75
Verdelho.....	"15 20 15 20 75	75
White Corinth.....	"15 20 15 20 75	75
"Nier.....	"15 20 15 20 75	75
White Corinth.....	"15 20 15 20 75	75
Zante Currant.....	"15 20 15 20 75	75
Yellow Orleans.....	"15 20 15 20 75	75
Zinfandel.....	"15 20 15 20 75	75

Mr. Wetmore.—Professor, have you examined the Mataro? You did not quote that.

Mr. Eisen.—Yes sir; I have it on the list, but it did not reach the proper number of points. The lowest number of points I allowed for this variety was thirty. The Mataro; healthfulness and growth of vine 20. The highest is 30; production 20; quality, 20; color and shape, 20. First, you see, the Mataro is wanting in healthfulness and growth of vine, and in bearing quality; but what I have against the Mataro is that it sunburns; it is very dark brown; and a great many berries are apt to blight. Besides, it is not a heavy bearer, which makes it not so desirable to plant as some other vines. It does not sun-burn up in your country; because you have not so much sun and hot winds.

The Carignan is a very good grape. I have given it 80 points. Healthfulness of vine, 15; production, 30; quality, 20; color and shape, 20; altogether 80 points. It is wanting in healthfulness of vine. It has the same fault as the Mataro; the leaves get blackened. It is a very good grape. The Grenache is its superior by five points. The Trousseau I have not with me. I believe it is now, for the first time, at Mr. Walters' vineyard. To the Folle Blanche, I have given 80 points. It is a very fine grape, and has a very fine flavor, but it does not produce as heavily as some other varieties. It seems to me without

doubt that the Sherry grape do the best in our climate, and I think it is they we should try to cultivate.

Mr. Wetmore.—But, Professor, we have not got the Sherry grapes. That is, we have not got the cuttings. When a man wants to plant a vineyard, what would you advise him to do, knowing the facts, that he has to rely on cuttings from the hill, and knowing that the stocks are in the State, what would you advise him?

Mr. Eisen.—Well, I would advise him if he was afraid of the phylloxera, to plant resistant vines, and when they were growing well, to import the finest vines from Spain or Portugal and grafted on the hill, so that the phylloxera, if he could kill the phylloxera by irrigation, or by some chemicals, it would be just as well to plant the grape that would grow the best in that particular district, and when they were suitable for grafting, then graft with finer vines, but I wouldn't advise anybody to plant poor vines first, because he wants to plant a vineyard.

Mr. Blowers asks Mr. Eisen what he means by the Yellow Mite.

Mr. Eisen.—It is a very small, spider-like insect, belonging to the mite family. It is somewhat similar to the red spider, only yellow. I have not seen the red spider in our neighborhood.

Mr. Krug.—With reference to Mr. Crabbs's paper, I would say all the questions touched on are really well handled. His views about the selection of soil, I consider absolutely good and sound. It is the soil in our neighborhood which produces the black oak, and secondly, the white oak, and afterwards the manzanita, madrona, and so on, and that, we all consider, is really the best soil of our neighborhood and district. His remarks about the warm and cold winds, and the hills of us in Napa. The little valleys in the hills and mountains are always exposed to injury by frost. Grapes grown there are easily attacked by mildew, but put them upon the hillsides, on the warm belt, they are less exposed to these injuries, and are more successful. It is the soil, Mr. Eisen's ideas about grapes I suppose and generally correct for Fresno Colony. We judge the value of the varieties of grapes that he mentions entirely from a different standpoint, but I suppose it is no use to mention it. He is living in Fresno County, graft, that, red country, not country—the condition and circumstances of which we are not familiar with. He calls the Carignan not a high graded grape. We do. He does not like the Mataro. We do. There is one grape mentioned by Mr. Crabbs which has lately created quite a stir among us. The Carignan we classed the Berger or an inferior grape. Of course most of Berger are planted in the valleys, but since we learned that the Bergers planted on the hill do well, we commenced to admire that grape. A very useful vine is made from the Berger. It is a kind of neutral vine. It is an excellent vine though of a neutral character, that is very beneficial in a large cellar. In the valley it does not get ripe enough. On the hills, if the altitude is not too high, I never saw it coming unripe to the press yet. Different varieties which Mr. Eisen mentions there are not as well adapted to our neighborhood. The Chateau and the Franc Pinot and others, are the grapes which we intend to plant for the future on our hillsides. When we want to plant a Riesling we ought to go higher up on the hill, than if we want to plant a Carignan. We have a great many grapes in our neighborhood about 2,500 feet high, but undoubtedly the hot sun does not show the same effect upon the Howell mountain as down below in the valley, and therefore, I have come to the conclusion, that where we have rich land at an altitude of 1,200 or 1,500 feet, it ought to do well for a Riesling or Hock wine, to use that expression.

The Claret, on account of color and flavor, may be, and I think ought to be, planted on a less high altitude. One word more about hillsides. We have in our district wines made from the same grape, for instance, Zinfandel, grown in the valley and Zinfandel grown on the hill, which are essentially different. In our neighborhood, for the last three years, Zinfandel grown in the valley has sold from 20 to 30 cents, while the Zinfandel grown on the hills will sell 50, 55 and 60 cents a gallon, 3, 4 or 5

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REFERENCES:
NAPA COUNTY.—Charles Krug, Mrs. J. C. Weinberger, Beringer Bros., John Thomas, W. Scheffer, and others. ST. HELENA: G. Nielsen, Rutherford; H. V. Crabbs, Oakville; G. Greening, Yountville. SONOMA COUNTY.—Mrs. Wardell, J. Chavett, Chas. E. Allen; J. Gundlach, Julius Dress, Henry Winkler, F. E. Brown, Sonoma; Isaac de Turk, Santa Rosa; Barney F. Williams, Windsor.

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or three buds above ground. Keep away the suckers and tie up the graft one a week until it reaches the top of the stake, and then pinch it off. At next pruning time leave plenty of buds, or the shoots will grow too heavy and all break off.

We should all plant more trees in and around our vineyards. They will be a protection against the cold North winds and frost in the spring. They will also be a protection against the hot North winds that destroyed our crops this year. They will partially restore to us the mild climate we had previous to the removal of the timber from the ground our vines now occupy.

Upon the conclusion of the reading of Mr. Crab's paper, Professor Eisen of Fresno read a very interesting and valuable paper on the relative value of varieties of grapes tried in Fresno county, as follows:

Professor Gustav Eisen on Varieties of Grapes Tried in Fresno.

The want of a practical way to express the relative value of different varieties of grapevines has, I believe, long been felt, and almost any endeavor to fill the issue will be found interesting, if not of real value. The very fact that that will do some way else, or grow well and produce a superior wine, for instance, in Sonoma, will be only indifferent, or perhaps even worthless in counties like Fresno, San Bernardino or Los Angeles, ought to teach us the necessity of trying a larger number of varieties before we plant largely. While every climate has its own varieties of fruit, so also do different varieties of grapes thrive under different atmospheres, different temperatures and in different soils. The most fatal mistake made in vineyard planting is the planting of varieties that will do well in one climate, perhaps under entirely different conditions. What wines could well be expected if the grapes from Middle Germany were transplanted to Southern Spain, or vice versa? Those grapes would first have to transform themselves into the varieties adapted to that climate, or conditions, before they would produce a wine of comparatively as good quality as they did in their former Northern home. In a country like California, where everything is so new, and where half a century ago viticulture was entirely unknown, it is natural that we should be very much in the dark in regard to the varieties which will do the best in any certain locality. For any new beginner in the business it is next to impossible to know what to plant. By enquiring from other vineyardists, one will still get no direction. It is the grape to plant, and it will tell you that *Grothe* is the very vine he prefers, and so on, any one having his pet variety and oftentimes knowing nothing or little of those his neighbor has grown and made a success of. And if we then enquire what merits one grape has over another, very few are they who can tell you at once the different faults or merits of the varieties of any certain district. Many are also they who condemn a variety for a single fault, not considering that it may be more valuable on account of its other qualities. Of course, everybody planting a vineyard wishes to plant only the very best. People having no previous experience in grape-growing very often ask you which variety is the best, the very best for wine, the very best for raisins. Of course, to answer such questions would be to present you with a very experienced. Even in the same county we have so many different varieties of soil, moisture and exposure, and each condition would, perhaps, require a different variety, that the question will be a most complicated one.

What is then the best variety of grape for any certain district? Is it the one that yields the most grapes? The one that yields the most wine? The one that yields the best wine? The one that yields the most salubrious and healthful wine? The one that yields the most, or the one that yields the best raisins? We see that there are so many qualities attached to grapevines, that without keeping a regular account of the same, it would be next to impossible to keep them all in your "mind's eye," and in the same time. It is this that makes the quality of some 160 varieties of grapevines, which I have kept for some time, and the way I have kept it, I propose to present to you to-day. First, then, let us consider which are the different qualities of grapes

and grapevines, which should be taken into consideration. These principal qualities are four, viz: 1. Healthiness of the vine; 2. Quality of grapes produced; 3. Quantity of grapes produced, and 4. Color and shape. We will consider each one of these principal qualities separately, especially as each one contains several sub-qualities, which should also be taken into consideration.

The first, and perhaps most important quality in a grapevine is healthiness of the plant. No matter how fine the grapes are, how highly developed, how abundantly produced, or how beautifully colored, if the plant is sickly in some way or another, and shows signs of decay, it must be considered useless for practical purposes. Here, however, I must remark that I have not taken into consideration the resistance to phylloxera, because all the European vines are subject to the same, and the relative value, which is the only value we can determine, would, by its consideration, be largely increased. On the other hand, the health of any variety must especially be considered in regard to the prevalent diseases and the destructive insect pests in the particular district where the vines are grown. With a perfectly healthy vine, which is vigorous, which grows neither too fast, nor too slow, and which is not subject to the common diseases or to the ravages of the insect pests. A too heavy growing variety in a climate like ours is apt to decay in a few years. Its stems get hollow and decay, and the whole plant gets subject to diseases, such as grape rot, grape cancer or anthracnose, etc. Neither is a vine of too slow growth desirable, especially if the vine also is slow to produce its grapes. But the principal effect of slow growth is that the vine is not sufficiently shaded the ground and its own grapes, which thus are apt to be blighted and burnt. Where exactly the golden-midway, between slow and rampant growth, lies, is, of course, very difficult to determine. It must necessarily be a difficult matter to find out, but by actual experiment and long experience. For Fresno, where the growth of everything is so exuberant, a slow growing variety of grape is preferable to one that is of too rampant nature. Many varieties, which in other respects are desirable and healthy, are objectionable on account of certain peculiarities in their growth. Sometimes it is the branches, which grow crooked or in a downward direction, or they interfere each other in such a way as to afford difficulties in picking, pruning, etc. On the other hand, a main quality of a variety may be its quality of taste, perhaps, but I prefer grape vines with upright growing branches, such as Zinfandel, Mataro, Fehér Szagos and others. Another important point in the healthiness of the vine is its resistance to mildew, oidium, anthracnose, yellow mite, etc. These are very common, and in this disease or pest is prevalent in the district in which it is intended to grow the vines.

The next or second quality of the grapevine is the quantity of grapes produced. It is a quality of hardly less importance than the first. The lighter the vine, the more it if it produces only few grapes, is only worth growing by the amateur. The common vineyardist would have for it no use, and the value of such variety would be reduced to a minimum. This of course only as long as our finest wines bearing only the same price as the common ones. But it is not only necessary that the grapes should be produced abundantly; they must also, to be profitable, ripen in the season of wine or raisin making, that is, before the frost and rain come. And not only should they ripen in time, but ripen all at once. For instance, some varieties like the Bishop grape are almost worthless for general use on this very account, that the grapes are produced all through the season, and only very few are ripened at the same time. In such a case, the vineyardist has to consider varieties which ripen some of the berries in each bunch, while many remain green and unripe. Only when a grape variety excels in all of the above points, viz: absolute quantity produced, quantity of ripe grapes produced in season, quantity of ripe grapes produced in the same time, we may call it a perfect grape in regard to production.

The third quality considered is the quality of the grape itself. This again includes, A. Quality of the grape for wine. B. Keep-

ing quality of the wine produced. C. Quality for table use. D. Shipping quality of table grapes. E. Quality of raisin grape. Let us consider each of these sub-qualities separately. It must be borne in mind that it is not only necessary that the wine produced should be tolerably fair; it must also have lasting qualities. Many grapes are, in this respect, defective; we all know how difficult it is to keep certain varieties of wines, even if perfectly dry, they keep on fermenting for months, while others keep in open air for weeks or even months at a time. In regard to table grapes, their qualities both for shipping and eating must be considered. Grapes which easily spoil are of little value, even if else fine for the table. On the other hand, grapes which keep long times are of value, even if their taste is not all that could be wished for. For instance, the *Flaming Tokay* is certainly a valuable grape for the table, not on account of its taste, which is similar to gooseberries, but on account of its lasting and shipping quality, which is superior to all other raisin grapes. The flavor and also the thickness of the skin has to be considered.

The fourth quality of the grape is in wine-grapes, the color, at least for red wines, and for raisin and table grapes the shape of the bunch and berry. The fourth quality thus contains the following sub-divisions or sub-qualities, all of which must be considered: A. Color of grape for dark wine. B. Color of grape for white wine. C. Color of table grapes. D. Shape of the grape for table and for raisins. E. Shape of the bunch for table and raisins. To express the relative value of each one of the above principal five qualities, I have assigned to each one of them a certain maximum number of points. If for instance, in a perfect grape the maximum of good points would be 100, then the quality of each grape is the first quality, which was healthiness of vine and manner of growth. I would give 30 points to the next quality, which is production. I have given 20 as the maximum of obtainable points in the third quality, which was the quality of the grape itself, and finally I have given 20 points as the maximum to the last quality, which was color and shape. Summing up the maximum points of each quality, the sum of 100 points would indicate a perfect vine. Of course in assigning points to each quality, which each different variety may have been an arbitrary one. When my vine did as well as I have ever seen any vine do, or as well as I could wish it to do, I marked in the column 30. When the variety of grape to which I referred produced as abundantly as each different variety, I marked in the column 30. When the grape was of first quality for wine, table or raisins, I set down 20, and finally when the color or shape was all that could be desired I also marked down 20. I need hardly say that so far as I am concerned, the maximum points reached the maximum. Such an ideal grapevine is yet to be sought for.

To have made this account perfect or as near so as we could reasonably expect, it should have been proper to further sub-divide each column or quality into five different sub-columns, each sub-column the aggregate of which would have given the total for each column. This however I have so far not done, and must leave it to a future time and other observers. Each one who feels interested in this matter may, however, divide each column into five columns. For the first column write the name of the grape. In the second the number of points given in regard to the healthfulness and growth. In the third the number of points given to production. In the fourth the number of points given to the quality of the grape itself, and in the fifth the number assigned to the color and shape. Finally in the fifth add the total of these points. Each one of the middle four columns may again be sub-divided and different number of points assigned to the different sub-qualities of each column. For a more systematic and better recapitulation the points of sub-divisions.

1. Healthiness and growth of vine.
A. Immunity from diseases and resistance to common insect pests, except phylloxera.

B. Quantity produced in season.
C. Quantity ripened at one time.
3. Quality of the grape.
A. Quality for wine.
B. Shipping quality of wine.
C. Quality for table grapes.
D. Shipping quality.
E. Quality for raisins.
4. Color and form of grape and bunch.
A. Color for red wine.
B. Color of grape for white wine.
C. Color of table grapes.
D. Shape of the grape for table or raisins.

E. Shape of bunch for table or raisins.
B. Habit of growth and shape of vine.
C. Slow or rampant growth.
2. Production.
A. Absolute quantity produced.

As the time hardly admits of my reading through to you the whole of the following catalogue, which I have prepared during my 10 years of stay in Fresno according to the vineyardists here laid down, I will mention to you only those varieties which I have found to be in our climate superior to many others. In regard to the wine grapes, of which so many varieties are known, none should be worthy of cultivation except for some special purpose, except the few that have a total number of points exceed 75 points. But of course if the grape grower wishes to produce a certain class of wine, either for blending or other special purpose, he will naturally less regard production and the profit from the same, than some special purpose he has in view.

In such case, many varieties with less points of merit will be worthy of a place in the vineyard, especially if they are of great value for blending, giving either color or flavor to inferior wines.

We will now begin with wine grapes.

30 POINTS.
DON ZELINO DE CASTELA.—A most magnificent black grape, a splendid grower, a fine bearer and in quality and color nothing left to be wished for. For port it is the very best, superior to Malaga or any other tried so far. Its home is Portugal, where it produces the finest port.

TABER SZAGOS.—A splendid sherry grape, the finest bearer, the finest wine.

FEBER XIMENES.—The fine Xerez grape of Spain, a splendid bearer, nothing left to be wished for.

TEMPANO.—Another fine sherry grape from Spain, equal to the former. Both varieties want heavy red soil.

90 POINTS.
BLACK GRENADE.—A very way desirable grape, superior in quality to Zinfandel.

ZINFANDEL.—A fine port wine grape, long tried, abundant bearer.

85 POINTS.
CHERES.—Fine sherry grape from Spain.
DORADILLA.—A very fine sherry grape from Spain, very promising, bearing qualities not yet enough tried.

FUMINT.—The Hungarian Tokay grape, does finely in Fresno. Good bearer, profitable, makes the finest sweet wine.

MALVOISIE A GROS GRAIN.—Fine for Malaga wine, superior to common Malaga.

PRIMOY DE FRONTIGNAN.—The finest grape for Muscat wine, an enormous bearer, superior to any other Muscat.

FRANKLIN RIESLING.—Fine for light dry wine. Better bearer than other Riesling wines in California.

LONG FRANK RIESLING.—Enormous bearer, good for wine.

REYES MUSCOTINA.—Fine for White wine enormous bearer.

WHITE CORINTH.—Very fine for wine according to F. Pohnhoff.

BLACK MALVASIA.—BEAVER—CRIGONE—CHARGON—CHARLES—CHASSERAS VIOLET—CHASSERAS ROYAL ROSE—HONORARI GREEN—MALVASIA DE PUY DE DOME—PIED DE PERDRIX—GREY DOCHON—WHITE HONORARI—BLACK DOCHON—BLACK VARELLO.
If we now turn to the table grapes we find with

90 POINTS.
BLACK PORTUGAL.—A fine black grape unequalled for shipping, of fine flavor and largest size.

85 POINTS.
KAROUT BLANC.—White.
WHITE MALAGA.—White.
MILL HILL HAMBURG.—Black.
MAYORQUE BLANC.—White, very similar to