Experiments in Growing California Grapes in Florida

Paul Hawkins, Eustis

Every state in the early stages of its development (and certainly Florida is yet in this stage) is unfortunately exploited by disciples of Ananias. The resources of the state are "Bucket-Shopped," and it becomes next to impossible to tell the solid gold bricks, from the plated ones.

I am telling you of my experience with grapes, rather then with bananas, avocados, or any other new crop, because in my experience and observation, they have given more promise of scientific development and ultimate commercial success, than any other new crop with which I have experimented.

I regularly experiment with every new crop; that is, every one that has real promise of making good in a commercial way. The limiting factors in this work, being time and money.

I have taken the time to give you this glimpse of the background of my experiments, that I may eliminate from your minds, as much as may be, any suggestion or reason for putting me in the "Get-Rich-From-Grapes-While-You-WAIT" class.

The questions most forward in the minds of those who are in any way interested in grape culture in Florida, are:

I. Can bunch grapes be grown successfully, either commercially or for home use?
II. What varieties are best?
III. What is the quality of fruit?
IV. When do they ripen?
V. What is the market for Florida grown grapes?

The truthful and complete answer to these questions is a pretty thorough ultimate answer to the grape question in Florida.

In what I am about to say I will endeavor to tell you what my experiments in their present state indicate as the answer to these questions. Do not misunderstand me, that I am professing to give you anything like the ultimate answer; for to even approach this will take years of study and experiment.

Question I. "Can bunch grapes be grown successfully, either commercially or for home use?"

The first step in determining the adaptability of any genus of plants to a certain locality, is a study of the indigenous plants of that locality. If no native genus of the plant to be introduced exists, the experiment would seem to me to have a questionable chance of success and should be approached with caution.

Those of you who have tramped or hunted the high-hammocks and piney woods of Northern and Central Florida, even though you were not even interested
in grapes, could not help but notice the wonderful growth made by the native wild grapes: Cinera, Simpsonii, Coriacea and Aestivalis. With their countless hybrids—vines a hundred feet long and three to six inches through at the butt. I believe the best descriptive word for them is profusion, in distribution, growth and fruit.

This is certainly evidence that bunch grapes will grow in Florida, though our native wild vines as they are, have little or no value in so far as quality of fruit goes, and when I speak of our native wild vines, I mean in every case to exclude the Rotundifolia or Muscadine, which has little part in the scheme of viticultural development in Florida.

Measured by the time that has elapsed since the domestication of the grape (at least 5,000 years), it is but "yesterday" that all of the Northern and Eastern part of the United States had no more nor as much of a start in the grape industry, as has Florida today. California and the West Coast were grapeless, except for a few vines at the old Spanish Missions. Since "yesterday" the North and East have domesticated their wild grapes, and have discovered a few accidental hybrids of questionable botanical origin. California, Arizona and New Mexico have imported their thousands of varieties of exotics from the Old World, and many crosses of the two classes have been made which have furnished all parts of the country with new and valuable varieties.

The evidence of this history of the grape in the United States should open a logical train of thought and a definite line of investigation; should demand thorough investigation and study of what relation the native wild grape should have to the future development of the industry.

Past experimentation and study along these lines were carried on with the same general background and for the same specific purpose, as exists for the present and future, i. e., scientific knowledge and profit. Past experimentation and study however, were carried on with special reference to, and in particular, for the then existing grape regions—for their soils, their climates and for the palates of their people. Much of the work that has been done will help the Gulf States in the development of a valuable and stable grape industry; yet I see no reason why Florida can consider the question settled for her, until she has done her own development work.

It is not reasonable to expect that the domestication of the Florida wild grapes will be a repetition of the history of the domestication of the wild grape in the North and elsewhere, yet we have the almost positive assurance that it will enter largely into the final solution of the grape problem in Florida.

Of equal importance to the domestication of the wild grape, is the adaptation here of grapes from other and similar climates and soils. As the results to be obtained from this method are so much quicker and are accompanied by a comparatively small amount of work and study, it has been, and will be, the method most universally adopted. However satisfactory the results thus obtained may seem, they cannot be conclusive.

In the selection of varieties for importation, the same fundamental reasons
should govern, that mark the domestica-
tion of the wild grape as an essential part
of the development of the grape industry.
Those varieties that are most likely to
thrive, are those native of similar climates
and soils. The grape industry in Florida,
as far as it has gone, indicates that this
is so, as do the experiments that I have
made, both with pure blooded and hybrid
American varieties.

The question of adaptability as indi-
cated above, would seem to be of para-
mount importance. I like not the word
"adapted" in connection with the intro-
duced varieties, for it is open to the in-
terpretation and is likely to convey the
meaning that, any variety to which this
adjective is applied, is a variety that has
been adapted to its new environment,
which is not the case with any grape in
Florida. Such a process of adaptation
would require years of patient work and
selection. The outcome of any such at-
ttempt would be so questionable and the
time required so great, that I doubt that
any one will purposely attempt it.

Dr. T. V. Munson in his "Foundations
of American Grape Culture" (and he
differs only slightly in his classifica-
tion from other authorities), lists some 28
species and sub-species as growing suc-
cessfully in various parts of the United
States. Of these one is truly an exotic
to the American continents, V. Vinifera,
or as it is commonly known hereabouts,
"California Grape."

The origin, as well as the history of the
domestication of this species is obscure.
We know only that it is of great antiquity
and that it came from somewhere near
the shores of the Caspian Sea. Certain
it is that in the past this species has
spread and has been truly adapted through
all of Western Europe, until today it is
found in a greater variety of soils and
climates than any other single species of
cultivated plant.

V. Vinifera of all grape species, thrives
on sunlight and heat, of which Florida
has at worst a fair share. Why then are
we debarred from raising this, the peer
of all grapes? Traditionally the answer
is contained in one word—humidity. Is
it possible that with the wide distribution
of this plant, that it has nowhere adapted
itself to a climate similar to ours. Its
wide distribution and its great antiquity
must have evolved some few varieties
that will grow in our climate and soils.

V. Vinifera thrives in New York State,
and I personally can vouch for the ex-
tremes of that climate. Such humidity
as we never have here, drought, deluge
and all manner of the worst weather at
the most unexpected times.

Viniferas thrive in France and Italy
and God knows that there are thousands
of American boys who can tell us of the
meanness of the climate of those coun-
tries.

About the last thing that one encounters
in going into the Big Deserts is a grape
vine.

To be true most fungus diseases thrive
in our climate as do countless biting, suck-
ing and chewing bugs. Thanks to the
Experiment Stations and Universities we
have sufficient means for the control of
all of these that attack the grape, and he
who would be a viticulturalist had better
start prepared or change his vocation
forthwith.
Finally we find that one variety of this species has been grown here in Florida for some eight or nine years. Why just one variety out of thousands?

The answer to all of this must lay in just one direction—experimentation and study.

The foregoing facts, with some experience with V. Vinifera in other climates, is the real road by which I arrived at my Vinifera experiment here in Florida. Of the experimental work done by Baron von Luttichau for the department in Washington, I knew nothing till my work had been underway for nearly a year. I doubt that his work would have in any way affected my determination had I known of it at an earlier date. His work was fine and complete and the results most gratifying, but his line of investigation was so radically different from my own that his results would not disprove my theories. Meaning specifically that his procedure seemed to me to indicate that he took every possible precaution to ward off disease and produce fine vines and fruit. My procedure is to find out how much "grief" the vines will stand and still produce good commercial fruit, at the same time seeing how good fruit I can produce with the greatest care, and where the point of "vanishing returns was likely to occur, in spraying, fertilizing and training." Baron von Luttichau has demonstrated one very valuable fact to the people of Florida, that so far, very few have taken advantage of, i.e. that all of you may have the finest of all grapes if not the finest of all fruit in your gardens. The work that you would expend on them would be repaid to you a hundred fold. Much would be learned that would be of the greatest value to the State at large and most every one would be the gainer. The baron has given you a direct challenge that you have not taken up. Spend fifteen minutes in my experimental planting and you will receive another.

I have in my experimental planting at Grand Island, over a hundred varieties of Vinifera grapes growing side by side with nearly an equal number of hybrids. The entire planting contains about 8,500 plants and nursery rows contain in addition some 20,000. To attempt to give you any idea of the identification of these would result only in an impression of a jumble of foreign names, but to those who are interested I will be glad to give all the specific information I have.

Let us sum up the facts which we have to determine the answer to question I.

1. We have four indigenous species, growing in profusion and bearing quantities of fruit, withstanding the ravages of insects and diseases and with all offering wonderful characteristics for hybridization with finer sorts.

2. Evidence of great possibilities in the importation of hybrids already developed, as shown by the elementary results already obtained.

3. The possibilities offered in the importation of varieties of V. Vinifera. This possibility for clearer understanding may well be divided into four subdivisions.

(a) V. Vinifera on its own roots. The least likely of all to succeed. Although even if the plants prove to be short lived and frequent renewals are required, considering the returns possible from lim-
itted planting of the fancy varieties, this might prove very profitable.

(b) Viniferas grafted on root stock, already known and proven, and which will do well here.

(c) Viniferas planted on rootstock developed from our native vines.

(d) Vinifera hybridized with our native and other vines, with Vinifera in attenuation of 3-4' or more, and the use of many more varieties of Vinifera than have been used for parents in the hybrids already made. A careful study of this question of hybridization indicates that only a very few varieties of Vinifera have ever been used as parents.

Without considering the question of grape diseases and insects—which I will cover later. The facts in favor of establishing a stable grape industry in Florida seem to me conclusive. As a conclusive argument spend fifteen minutes in my experimental planting.

Question II. "What varieties are best."

I have a fair reputation for truthfulness, and I wish to keep it. The answer to this question is not yet, and I doubt if there will be one best variety. I do not even know yet approximately how many good varieties there are. There are certainly a dozen or two of the hybrids, to say nothing of the Viniferas, that time will show to be successful.

In tabulating the results of my experiments, that I might get some comparative measure of the merits of the various varieties, I have used an arbitrary scale of five (had I had the time to be more constantly in my vineyard and to make more painstaking observations, a scale of 100 would have been better). Five being the best or highest and 0 the lowest.

In order that you may interpret these results into a concrete mental picture, I am using three of the best known hybrid grapes grown here in Florida, as a basis for comparison. Considering growth unaffected by insects or disease, I give Carman a growth rating of 3, Armalaga a rating of 3, and Ellen Scott a rating of 2, an average for all hybrids of 3, and for Vinifera, 5.

Resistance to Nematodes—All hybrids 4½. Vinifera 3½.


Resistance to Downey Mildew—Carman 3½, Armalaga 4, Ellen Scott ½, all hybrids 4.

Resistance to Flea Beetle—Carman 5, Armalaga 3, Ellen Scott 2, all Hybrids 4, Vinifera 3.

Resistance to Leaf-Folder—Carman 5, Armalaga 4, Ellen Scott 5, all Hybrids 3, Vinifera 5.

Resistance to Phylloxera—None found as yet.

Resistance to Grape Leaf Hopper—Only a slight isolated attack.

Resistance to the Various Rots—Almost none present as yet.

Statistics are tiresome to any one who is not a student of the subject covered, so I have confined myself to the most common and serious diseases and insects.

To generalize, which is more interesting, though much less accurate, I have many varieties of Vinifera which will outgrow, and out fruit Carman (the most common grape in Florida), three to one,
having the relative resistance shown above. All Viniferas have shown a much higher resistance to Anthracnose than either Armalaga or Ellen Scott. All Vinifera varieties can be made more resistant as far as root system goes, than most all of the hybrids and as good as the best. Many varieties of the Vinifera are as resistant to Downey Mildew, as most of the hybrids. Most all of the Viniferas are entirely resistant to folder and blue beetle, while many of the hybrids suffer severely and require an extra spraying for one or both of these pests.

In no case has the behavior of the Viniferas been such, as to warrant their elimination for any reason whatever.

In the case of the hybrids (with the exception of a few plants for nursery purposes) I have eliminated a number for lack of resistance, poor growth, lack of resistance, lack of quality of fruit, etc., among which are Salem, Gold Coin, Catawba, Carman, Marcus, etc. I do not wish to brand these as poor grapes. They simply do not measure up to the standard by which I will eliminate.

So far, the Vinifera has the best of the chances to be the basis of a stable and paying industry. Unfortunately we have only gone a short way. On the Pacific Coast, the establishment of a full-bearing vineyard of Viniferas takes from 6 to 9 years. Here we may hope to shorten this time. Patient, careful experimental work alone will answer the question. Experimenting with 27 varieties will not tell the truth, nor should it be necessary to use 2,700. One good variety will not establish a grape industry. Lack of standardization will be almost as bad.

A collection of the facts bearing on the selection of the best varieties at this stage is not very imposing. However, in no grape region that I know of, is the industry founded on one variety. No one man or group of men, will ever know all about the industry or the varieties to use. California, with its mammoth industry, high degree of standardization and long experience, still supports some 14 experiment stations, and is constantly bringing forward new and valuable varieties. As a matter of fact, we, in the East, really do not know what good grapes are, for many of the best varieties will not bear shipping from the West Coast.

I can only say in closing this question: Do not adopt for planting one variety of grape only. Do not adopt any variety that gives all the profit to the nursery man. Above all remember that it costs more to raise a sorry grape than a good one.

Question III. "What is the quality of the fruit?"

Here indeed, is smooth sailing: There is very little comparison in quality between the Hybrid "Slip-Skin" and the meaty, highly and delicately flavored Vinifera. In the parlance of the prize ring: "This is the Viniferas round all the way through." Moreover the quality of the Hybrid goes up or down, almost in direct proportion to the amount of Vinifera blood that it contains. The superiority of the Vinifera over other grapes is not even open to argument, for, if we use as a final standard of measure of quality, the yardstick of dollars profit, the honors still go to the Vinifera by a large majority. The grape consumption of the country, exclud-
ing raisins, is composed of Viniferas and others about in the proportion of 30 to 1. Or you may use about this figure as the absorbing power of the market, or conversely, the selling effort required to dispose of your crop.

Practically all the wines are made from Viniferas; Alicante Bouchet, and Carignane selling on the N. Y. market for double the price of the table grapes, with which we are familiar, such as Thompsons, Tokays, and Emperors, etc. These in turn selling for double the price of the Hybrid "Slip Skins."

Taken by and large, everything is in the favor of the Vinifera when it comes to quality. Specific climates and root stocks, however, have the power to all but ruin the quality of a grape. This is, however, about the only dark cloud on this horizon.

I have already mentioned that I have had success with some of the known and tried root-stocks. Their behavior should satisfy us on that point and should lead us away from the growing practice here in Florida of using complex fruiting sorts as root stocks. The development of a root-stock is a long and expensive matter, and following such roads as are being used here, all too often becomes a squirrel path and goes up a tree.

All of the fruit that I have produced, left nothing to be desired in the way of flavor, sugar and acid content and general quality. Any danger from this source, with the use of proper root stocks, may I believe, be forgotten. This year I will fruit some fifty additional varieties and can then furnish additional verification of this fact if it be needed.

I do not mean by what I have said to discourage any one from raising the Hybrids. The ultimate answer may be in this direction though I do not think so. Possibly through some American Vinifera Hybrid, containing a large percentage of Vinifera blood. We certainly can grow hybrids of this character here, hybrids of much better quality than those we are now working with.

No plant in the whole universe can surpass the grape in the reward it offers, for good grooming and sufficient food. Remember, "It costs more to raise a sorry grape than a good one."

Question IV. "When do they ripen?"

As the result of pure error or propaganda, there seems to be a somewhat general belief that the California grape crop is on the market earlier than it really is, which would make it appear that we would meet serious competition from California.

Our midseason and late varieties will ripen with the early varieties from the Imperial Valley, and will have to be marketed in competition with them, but if our entire crop ripened at the same time as the Imperial Valley crop, we need have little worry, as the total crop from there is but a "drop in the bucket" of the total grape market of the country.

The main crop from California which comes from the great Central Valley, is in reality late; a fall crop. Late August, September and October, brings the bulk of it, with a continuation of shipping up to February.

To be exact and to eliminate question, let me give you facts from three authoritative sources:
From the California Grape Grower of
March 1, 1925, the total unloads for the
season by months in N. Y. City up to De-
cember 1, 1924, was as follows:

<table>
<thead>
<tr>
<th>Month</th>
<th>Cal.</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>June</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>July</td>
<td>143</td>
<td>2</td>
</tr>
<tr>
<td>August</td>
<td>857</td>
<td>7</td>
</tr>
<tr>
<td>September</td>
<td>4157</td>
<td>56</td>
</tr>
<tr>
<td>October</td>
<td>6111</td>
<td>590</td>
</tr>
<tr>
<td>November</td>
<td>2095</td>
<td>305</td>
</tr>
<tr>
<td>Total</td>
<td>13,364</td>
<td>961</td>
</tr>
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</table>

These figures show that up to Septem-
ber 1st, about one-fifteenth of the crop is
shipped, and during September and Oc-
tober, about 12-15ths are shipped.

From "California Fruits," Edward J.
Wickson, Professor Emeritus, Univer-
sity of California. "By choice of early
and late varieties, the grape season ex-
tends over half a year in California."
"Where the fall rains are not very pro-
tracted, the late varieties sometimes re-
main in good condition on the vines until
the winter pruning. "Good grapes have
been picked from the vines as late as the
middle of January. In the Lodi district
of the San Joaquin Valley (one of the
great centers of the shipping industry)
overland shipping begins about August
10th, and Black Prince, Tokays from
light soil soon follow; then from heavy
soil, and in about two weeks everything
is going full blast, keeping up strongly
for nearly two months."

It will be seen from the foregoing that
heavy shipping does not commence for at
least three weeks after August 10th, or
approximately September 1st.

From U. S. Dept. of Agriculture Bulle-
tin, by Geo. C. Hussman, I am giving the
dates of growth starting, compared with
dates in my vineyard for half a dozen
varieties, as well as an approximate aver-
age for all varieties which I am now
growing, and which are listed in the
bulletin:

<table>
<thead>
<tr>
<th>Variety</th>
<th>Growth Starting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varieties</td>
<td>Cal.</td>
</tr>
<tr>
<td>Bakator</td>
<td>March 23</td>
</tr>
<tr>
<td>Carnignan</td>
<td>March 25</td>
</tr>
<tr>
<td>Chasselas Rose</td>
<td>March 28</td>
</tr>
<tr>
<td>Cornichon</td>
<td>March 28</td>
</tr>
<tr>
<td>Gradiska</td>
<td>March 20</td>
</tr>
<tr>
<td>Malvasia Rosario</td>
<td>March 12</td>
</tr>
</tbody>
</table>

The average for all varieties in Cali-
fornia is about March 25th, whereas most
of the varieties in my vineyard had start-
ed growth well by February 15th, and
some were well started by February 5th.

The average blooming date for all Vini-
feras in California in an early season is
about May 25th. The average date in my
vineyard was about April 4th.

All the figures given for California are
for an early season, while those for my
vinyard are this years, and growth was
retarded as much as possible by the meth-
od of fertilization cultivation and pruning
that I used. As to the earliness of the
season here you are better judges than I.

I am not attempting to make a compar-
is on of fruit ripening dates, as the results
I obtained last year were so upset by a bad
burning with Bordeaux, and the fact that
most of the vines were newly set, as to
make the results of little value in basing
a conclusion.

What can be depended on as a true
guide to the fruit ripening dates, is the
seasonal sum of "heat," i. e. The sum
total of the average or mean daily temperatures. It has been demonstrated that when this total reaches 5400 degrees, sufficiently high daily temperatures have existed to have ripened the fruit. Florida, hereabouts, adds up this total of daily temperatures at a much earlier date than does the great valley of California.

June 10th to August 10th will cover the ripening date for most all of the Viniferas, as well as the hybrids. Pearl of Csaba, Black Malvoise and others, on proper root stock can be ripened considerably earlier.

These ripening dates show that we will ripen any crop of grapes from two to six weeks ahead of other localities in the U. S.

Question V. "What is the market for Florida Grown Grapes?"

As far as I know, no recent attempt to market Florida grown grapes, in sufficient quantity to be used as a guide for the future, has been made. The best guide then, is an analysis of the conditions under which they must be sold.

There are two distinct phases of the grape market, radically different in their ability to absorb volume of product, though the same variety of grape may enter, to a certain extent, into both.

First the Table or Desert Grapes, such as Tokays, Emperors, Malagas, etc. Then the wine grapes, Alicante Bouchet, Zinfandel and Carignane, which California now calls, "Juice Grapes." Personally I do not like the apocrypha of the term, nor do I care to defer even this much to the vicious minority, which through the weakness of our political procedure, is able to force its will on the majority of the people of the United States, debauch the youth of the country, and destroy the effectiveness of constitutional law.

The most outstanding fact about the two classes of grapes, is the difference in market value. Alicante Bouchet brought on the N. Y. market last year, an average of about $2.50 per lug, while the average for the Malagas, Tokays etc. was about $1.30, and this relative difference has existed in about the same proportion ever since the advent of prohibition.

The second most important fact is that the market will absorb what seems like an unlimited quantity of wine grapes and still hold the price fairly well, while the opposite and normal condition holds for table grapes. Most any kind of a juicy grape will find a ready market these days.

The third important fact is, that the wine varieties on the whole, give more promise of quantity of fruit than the table grapes and will be less affected in quality of product by the introduction of a small quantity of Native Grape blood, than will the table varieties.

The facts of the case would indicate that the wine grape industry would on the whole be more profitable and easier of accomplishment, than that of raising the table or desert varieties. I believe this to be a fact with the exception that the able varieties may prove as profitable or more so up to the point of market saturation for early varieties.

I have endeavored up to now, to give you some sort of a bird's eye view of the whole grape situation as I see it and it's bearing on the experimental work I am
carrying on. I would perhaps have been more in order, had I held more closely to field work. I will try to atone for this and give a general idea of just what I have done, the successes I have met with as well as the misfortunes: The selection of a vineyard site was a long task with me, I did not wish to prejudice my work by either too good or too bad a location. I insisted only on fair soil (as Florida high pine land goes), a free sweep for the wind, good air-drainage, good sub-soil drainage, water-table at least ten feet down, and clay not nearer the surface than this figure.

Much has been said that need not be repeated, of the necessity of good drainage for vineyards, yet I do not think that it is fully appreciated, that a great many varieties of grapes are really very deep rooted, ten to twelve feet average with as high as 25 feet. To be true, a grape will live where many plants will die, and bear fruit at that; but will not satisfy in the quality and quantity. Its response to good treatment is as wonderful as its determination to grow on and produce under the most adverse conditions.

Procuring various varieties of the Munson and other hybrids was, of course, quite easy when it came to the Viniferas, it was quite another story. I had and have, very little faith in the Native wild vines or the complex Hybrids for this purpose. In neither case have we any real knowledge as to their behavior. I therefore turned to the most promising of the root stocks in use in California trying at the same time some of the fruiting hybrids, most of these being of simple parentage.

I have so far used some 23 stocks, grafting to each, only such varieties as were known, or were likely to bring satisfactory results. There is nothing to be gained from indiscriminate grafting without any knowledge of the effect of so doing on the quantity, quality and date of ripening of the fruit, as well as the affinity of stock and scion and the consequent probable longevity of the vine.

In addition to grafting these stocks, I carried them through on their own roots ungrafted that I might note the behavior of them all in our climate and soil. So far I have yet to find any better stock for our use than many of those already developed, though I am far from believing that a better stock for Florida cannot be evolved.

Of our Native vines, I find much has been said that is not true of them when in their proper environment, and some of these statements are by the most eminent authorities.

It is stated in most viticultural works, that they do not root readily from cuttings, yet I have this season taken cuttings from Cinera Hybrids from my callusing bed, that had callused and even formed roots very nearly as well as the
Vinifera cuttings that were treated in the same way. These cuttings are now growing nicely, in my nursery.

It is generally stated that our native vines do not bench graft readily, but a more or less half hearted attempt on vines that were structurally almost impossible to graft, netted me over a 50 per cent take.

Both these facts are in favor of using these varieties as root stocks, yet they all, (Simpsonii and Cinera) have very marked affinities and many varieties of Vinifera are refused by them. The tendency of these grafts when they do take, seems to be toward a lack of fruitfulness.

I have so far, found a little time for hybridization, and most of the work that I have done along this line, has been in the search for a better root stock for Florida, though no small amount has been done to produce new fruiting sorts. I procured last season several hundred seeds and hope to increase this by several thousand more this year.

In setting my vineyard, I believed it best, in spite of the lack of convenience, to split my Vinifera planting in two parts that I might be surer to get more diverse soil and drainage conditions. This was a wise precaution, as a very marked effect has been produced on growth by different soil conditions. Also by the proximity of woodland to one part of my Vinifera planting. The attacks by Leaf Hoppers, Blue (Flea,) Beetle, Folders etc., has been much heavier in that section than in the other. The same condition has existed in relation to the Fungus diseases. These conditions are as might be expected, but were worth verifying, and yet more worth remembering, in considering a vineyard site as well as in the study of the relative behavior of different varieties, or the same varieties in different localities.

So far in my work I have followed precedent and tradition, the two great millstones around the neck of agriculture. If I were to really try to raise Viniferas away from the arid and semi-arid states, then I must forswear all precedent and tradition. I was literally thumbing my nose at fate and undertaking an almost impossible task. No where except from Dr. Hedrick and his work, could I find any encouragement. Three other things contributed about equally to the formation of my belief that we were missing an opportunity to raise, at least some varieties of Viniferas.

That a comparison of the humidity tables, for certain of the grape regions of the Pacific slope, with those of Florida, for the ripening period of the crop in each state, showed much more comparative figures that one would imagine possible.

That the seasonal sum of heat required to ripen the crop here, came quickly, and at a much earlier date than in the west, with but a shade less daily average sunshine.

That I had no little desire to be an Iconoclast in this matter and thorough accord with Dr. Hedricks belief that no work is so thoroughly bound up in tradition as Agriculture.

Humidity! This word has acted as an impassable barrier against the attempt to raise Viniferas in the East. Because of it fungi and insects thrive, that can-
not do so in the arid climates. Yet it is a much abused term, or rather a much misunderstood and misused word.

It would seem that because the arbitrary measure of relative humidity has been designated as the figure 1, the point at which the amount of water in the air becomes so great that precipitation begins; that many of us believe that relative humidity is in exact proportion to the amount of rainfall. This relation does not exist, and it is not axiomatic that high rainfall always means the same and high relative humidity. Humidity of between 80 and 90 may exist for a month without a single bit of precipitation or rainfall. Conversely, there may be four or five inches of rainfall during any one month, with a mean relative humidity averaging as low as 40 to 60. Humidity is by no means constant over a given area. Low, heavily wooded, with poor soil drainage, with poor air drainage, or tracts entirely surrounded by heavy woods, will have a much higher relative humidity than, high, cleared tracts with good soil and air drainage and where sun and wind have full sway.

Our high pine lands, with good sand loam, not surrounded entirely by woods, will have a markedly lower humidity than most of our Hammock lands. Better yet to keep away from uncultivated woodland on all sides. Then you may have heavy rainfall and relatively low humidity. Good air drainage, bright sunshine and fair winds, will do what spraying cannot, and will reduce the spraying bill for the year by half.

There are, I believe such things as "Paper Facts," as well as paper profits, and they are alike in one respect, you have to "take" one and "demonstrate" the other before either is of any real good. There is one Paper Fact that has been in no wise demonstrated in my experiments, and that is the question of the longevity of any Vinifera planting. Baron von Luttichau has given us some very valuable information on this, and it would seem from his work that we may expect sufficient longevity from Vinifera plantings, to at least warrant making them. Much is yet to be learned on this subject.

My vineyard has suffered no end of abuse at my hands, some intentional, much otherwise. In the early history of it, it was badly burned with Bordeaux through the use of bad lime in the mix and lack of Potassium Ferro Cyanide for testing the mix after it was made. It has been burnt slightly twice since then. When ever worked pressed and something had to be neglected, it was always the vineyard in favor of the more intensive and valuable crops. Spraying, cultivating and fertilization have been put off or entirely omitted, to the danger point, yet all the varieties have done well, and some have surpassed any hope that I had felt, even had the very best care been given them. They are thriving, growing in luxury, and bearing as large a crop as is safe, of fine quality fruit.

Of the willful abuse of the vineyard I will mention only a few of the things that I have done. Severe root pruning, summer pruning; very early and very late top pruning of the most radical sorts; positively forcing shallow and deep rooting, I have as yet, not sprayed this year
to get a good check on resistance to Anthracnose.

All of this radical experimental work, has so far given me some valuable points on root-system development and has convinced me that I can propagate better vines with dry mulching than with irrigation. Dry mulching, is perhaps a bit more work and a bit more expensive but considering the drought insurance and the quality of the vines produced, "The Game is Worth the Candle."

Any one who, like myself, turns his avocation into his vocation, once being "wound up," never "runs down." I will therefore "put on the breaks" and directly will come to a full stop.

To those of you that believe the ultimate answer to the grape question in Florida has been found, I suggest again, that you take the time to look over my vineyard and nursery, bearing in mind what I have said to you, and the abuse that it has had.

To those of you who are purely upholders of tradition I have no apology to make.

To those of you who are learned and experienced in agriculture in general, and viticulture in particular, I wish to ask your indulgence, and to assure you that I have undertaken my experiment with an open mind, and with years of experience and study in scientific, though different, fields.

To the man, I do not remember who, or how large he was, that told me that some day I would come to raising one certain variety of grape only, I wish to relate a little anecdote:

I once asked a Scotch neighbor of mine, if he was going to do the almost too generous thing and allow another neighbor to get the better of him in a trade, and Scotti replied:

"A pig mout wistle but he ha a werra unlikely muth."