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A TREATISE

ON GRAPE CULTURE IN VINEYARDS,

IN THE VICINITY OF CINCINNATI.

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BY A MEMBER

OF THE CINCINNATI HORTICULTURAL SOCIETY.

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1850.



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IN VINEYARDS.

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*Robert Buchanan*

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MEMORANDUM

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TO THE

CINCINNATI HORTICULTURAL SOCIETY.

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The cultivation of the Grape in vineyards, for making wine, is now so important a branch of horticulture, in the valley of the Ohio, and especially in this vicinity, that a brief treatise on the subject may perhaps be considered useful.

The one now presented, has been compiled from several valuable articles on grape culture, published within the last ten years, in horticultural periodicals, by able writers and practical men—members of your Society; Mr. LONGWORTH, Dr. MOSHER, Dr. FLAGG, A. H. ERNST, J. E. MOTTIER, C. W. ELLIOTT, WM. RESOR, JOHN SAYERS. T. AFFLECK, and others—the greatest number being from the pen of Mr. LONGWORTH; also, from Mr. SCHUMANN's pamphlet, published in 1845, and a book on the same subject, by JOHN JAMES DUFOUR, of Vevay, Ia., 1826; aided by the observations and practical experience of the writer.

After all that has been done, and written, grape culture and wine-making in this country, is as yet but imperfectly understood, and it is only by *experience* and a *free interchange of opinions*, that we shall arrive at a better knowledge of it hereafter.

Our climate, and the native grapes we cultivate, differ so much from those of Europe, that the intelligent vine-dresser from the old world, finds he has much to learn in the new, and, that a wide field is presented for observation, in which all must here *work* and *think* for themselves.

At the time Mr. DUFOUR wrote, in 1826, the *Cape Grape* was then the only kind cultivated in the Ohio Valley, for wine. About that time the *Catawba* was brought into notice as a wine grape, by Major ADLUM, at Georgetown, D. C., and by Mr. LONGWORTH, in the West; and it is now so great a favorite as to be almost the only variety planted. To these gentlemen as public benefactors, the country owes a lasting debt of gratitude for introducing into vineyard culture, this noble grape.

Many improvements in grape culture, and in wine making, have been made since Mr. DUFOUR's day—even since the publication of Mr. SCHUMANN's pamphlet in 1845, only five years ago, practical cultivators have, in some particulars, adopted other modes than those then recommended; and it is confidently expected, that within the next five years, still greater improvements will be discovered. The business is yet in its infancy, and will require long and careful nursing, to enable it to reach maturity.

Considering the growth and importance of this branch of Horticulture, it would be improper to close these prefatory remarks, without a passing tribute to the merits of the worthy pioneers in this enterprise—the Swiss settlers of Vevay, and the German vine-dressers of our own county—who, under all the disadvantages of a climate, soil, and vines unknown to them—persevered in their efforts, with patient industry, until the present favorable results have been produced. But to Mr. LONGWORTH, more than to any other man in the West, we are most indebted for our knowledge in grape culture. Mr. L. has, within the last twenty-seven years, with unwearied zeal and a liberal expenditure of money, in numerous experiments with foreign and native grapes, succeeded in enabling himself and others, to present to the public, a “Sparkling Catawba,” rivalling the best French Champagne, and a dry wine from the same grape, that compares favorably with the celebrated Hock wine of the Rhine.

Several varieties of wine have been produced from other grapes than the Catawba, but with the exceptions of that made from the Cape—which is a red wine resembling Claret—it will require time to ascertain their value.

From the Isabella, Ohio, Missouri, Norton’s Seedling, Minor’s Seedling, Lenoir, and Herbemont’s Madeira, wines have been made of more or less promise—samples of which may be found at the cellars of Mr. LONGWORTH, and some others.

The views here given are those of many of our most intelligent vine-dressers. A difference in opinion may exist with others on some points, which time and experience alone can reconcile.

*Cincinnati, Feb. 18th, 1850.*

R. BUCHANAN.

N. B. A valuable addition to the appendix will be found in an able article from the pen of Mr. LONGWORTH, on the Cultivation of the Strawberry. This branch of Horticulture is better understood, and carried on more extensively in this vicinity, than in any other part of the United States—thanks to the discrimination of our cultivators, who early discovered the advantages of planting with reference to the sexual organs.

R. B.

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# CULTURE OF THE GRAPE.

## THE VINEYARD.

In establishing a vineyard, it is a matter of much importance to select the right

### POSITION AND SOIL.

A hill side with a southern aspect is preferred, although an eastern or western exposure is nearly as good. Some have recommended the north, on account of safety from late spring frosts, but it will scarcely afford sun enough to ripen the grapes in cold wet seasons, (if the declivity is steep,) and may perhaps be more subject to "the rot."

Any undulating surface if dry, is preferable to a level one.

*The soil* best suited for a vineyard, is a dry calcareous loam—with a porous subsoil—not retentive of moisture; if mixed with some gravel or small stones, so much the better. Some prefer a sandy soil with a gravelly sub-stratum; as in this the grapes are less subject to rot; the juice however is not so rich,—lacking in saccharine matter,—and in dry seasons the vines will suffer from the drought, shedding their leaves prematurely, and preventing the grapes from ripening well. In warm, sandy, and gravelly soils, the fruit buds on the vines are sometimes killed by the frosts of a severe winter.

Any soil underlaid by a stiff wet clay, is to be avoided, as also wet or spongy lands. No trees should be allowed to grow within one hundred feet of the vineyard.

### PREPARING THE GROUND.

In autumn or early winter, dig or trench the ground all over, 2 to 2½ feet deep, with the spade—this is far better than ploughing—turn the top soil under; the surface will be mellowed by the frosts of winter.

Wet spots in the vineyard may be drained by small stone culverts, or by what is termed a French drain, a ditch, with some loose stones thrown into it edgewise, covered with flat ones, and filled up with the earth again. Surface draining may be obtained by *concave sodd* avenues of 10 feet wide, and intersecting each other at 100 or 120 feet, thus throwing the vineyard into squares of that size. This will do for gentle declivities; but steep ones must be

terraced, or benched with sod or stone, which is more expensive. These benches should be as broad as they can be made conveniently, and with a slight inclination to the hill, that they may be drained by stone or wooden gutters, running into the main trunks, to carry off the water without washing away the soil. This is important, and requires good judgment and skill.

#### PLANTING.

Much diversity of opinion exists, as to the proper distance of planting the vines apart in the rows. Our native varieties with their long joints, large foliage, and luxuriant growth, certainly require more room to grow than the short jointed vines of the Rhine. Hence it is supposed, that our German vine-dressers have sometimes erred, in planting too close in this country,— $3\frac{1}{2}$  by 4; 4 by 4; 4 by  $4\frac{1}{2}$ , &c. For steep hill sides,  $3\frac{1}{2}$  by  $4\frac{1}{2}$ , or 3 by 5 may answer, but for gentle slopes  $3\frac{1}{2}$  by 6 is close enough, and for level land, 4 by 7. This will admit sun and air to mature the fruit, and leave a liberal space for the roots to grow.

Lay off the vineyard carefully with a line, and put down a stick some 15 inches long, where each vine is to grow. Dig a hole about a foot deep, and plant two cuttings to each stick, in a slanting position, separated 6 or 8 inches at the bottom, and 1 inch at the top of the hole, throw in a shovel full of rich vegetable mould, from the woods, to make the roots strike freely; let the top eye of the cuttings be even with the surface of the ground, and cover with half an inch of light mould, if the weather is dry.

If both the cuttings grow, take up one of them the following spring, or cut it off under ground, as but one vine should be left to each stake.

To prepare the cuttings for planting, bury them in the earth when pruned from the vines, and by the latter end of March, or early in April, which is the right time for planting, the buds will be so swelled, as to make them strike root with great certainty.

Each cutting should contain at least four joints, and be taken from wood well ripened; if a small part of the old wood is left on the lower end, so much the better; cut them off close below the lower joint, and about an inch above the upper. Set out some extra cuttings in a nursery to replace failures in the vineyard.

Some good vine dressers have recommended planting with roots two years old, but the experience of others is in favor of planting at once with cuttings in the vineyard; the vine being never disturbed by removal makes the more thrifty and permanent plant.

Of course the planting should only be made when the ground is warm and dry, or mellow.

#### TREATMENT OF THE YOUNG VINEYARD.

*The first year*, keep the ground clean and free from weeds, with the hoe; many use the plough as being more expeditious and economical, but the more careful vine dressers who can afford it, never

cultivate with the plough, using only the two pronged German hoe, made especially for the purpose.

The earth should be stirred around the young vines, two or three times during the season, to promote their growth; superfluous shoots must be pulled off, leaving but one or two to grow, at first, and but *one* eventually.

In the spring, cut the young vine down to a single eye, or bud; at first, if two are left for greater safety, take off one, afterwards; drive a stake 6 or 7 feet long firmly to each plant. Locust or cedar is preferred, but oak or black walnut, charred at the end, driven into the earth, or coated with coal tar, will, it is said, last nearly as long. Keep the young vine tied neatly to the stake, with rye or wheat straw—pick off all suckers, and let but one stalk or cane grow. The vineyard must be kept clean of weeds, and the young vines hoed as before.

The *second spring* after planting, cut down to two or three eyes, or joints, and the *third year* to four or five; suckering, tying up, and hoeing the vines as recommended above.

Re-plant from the nursery, where the cuttings have failed to strike root in the vineyard.

The *third year*, the vines will produce a few grapes, sometimes enough to pay the expenses of attending them.

Train *two* canes to the stake this year, take off suckers, and keep well hoed.

The vineyard having now commenced to bear, may be considered as *fairly established*; and for the *fourth* and successive years, the following treatment is generally adopted.

#### SPRING PRUNING.

This is usually done from the middle of February to the first week in March. Some prune in January, and Mr. SCHUMAN has recommended November and December, as the proper time.

No serious injury to the vines, by winter pruning, has yet been discovered.

Pruning, *the fourth year*, requires good judgment, as the *standard stem, or stalk*, has to be established.

Select the best shoot or cane of last year, and cut it down to 6 or 8 joints, and fasten it to the adjoining stake in a horizontal position, or bend it over in the form of a hoop or bow, and tie it to its own stake. The ties should be of willow. This is the bearing wood. The other cane, cut down to a spur of two or three eyes, to make bearing wood for the next season.

Mr. SCHUMAN remarks in his treatise, "There are various methods of training adopted. Some tie the shoot up to the stake with two or three ties at proportionate distances.

"The greater part of the German vine-planters make circular bows with three ties, and another mode is to make half-circle bows. I recommend the latter as the best, and proceed to describe it.

“Give the shoot the first tie on the stake 9 inches from the ground, and the second, 9 inches above it; then bow it over to the neighboring stake in a horizontal position, and give it the third tie to that stake, at the top of the vine.”

In the succeeding, and all subsequent years, cut away the old bearing wood, and form the new bow, or arch, from the best branch of the new wood of the last year, leaving a spur as before, to produce bearing wood for the coming year, thus keeping the old stalk of the vine down to within 18 to 24 inches, from the ground. The vine is then always within reach, and control.

Should a vine be lost after the vineyard is in bearing, it can be replaced by a layer from the adjoining vine, which is a much better mode than planting a young vine. The layers may be put down late in summer, but spring is preferred.

Cultivate the yellow, and the osier willow, to make ties for the spring pruning. They will grow in any wet place.

#### SUMMER PRUNING

Consists in removing suckers, and *pinching* off all lateral shoots, leaving but two stalks or canes to be trained for bearing wood the ensuing year, and *pinching* off the ends of the *bearing* branches, about the time of blossoming, some two or three joints beyond, or above the last blossom bunch; pull no leaves off the *bearing* branches, and but very few from any other. As the vines grow, tie them neatly to the stakes, with rye straw, (some use grass,) and when they reach the top, train them from one stake to the other, until the fruit has nearly matured; the green ends may then be broken off. If this is done too early, there is danger of forcing out the fruit-bearing buds for the next year, and of injuring the grapes in ripening.

#### CULTURE.

The vineyard must be kept perfectly clean from weeds and grass, and should be hoed twice during the spring and summer.

The cultivator or the plough is less expensive, but the vines and roots are in danger of being injured by that mode of culture; therefore the hoe is preferred by those who can afford it. It has been recommended by some writers, to cut off the roots of the vines near the *surface* of the ground, and for 4 or 5 inches under, that the roots, when the vines are young, may be well established at a proper depth below.

By others, this plan is thought to be injurious. The majority however, prefer cutting off the surface roots for the first three or four years.

About every third year, put in manure, by opening a trench the width of a spade, and four or five inches deep. Above and near each row, throw in two or three inches of well rotted manure, and cover up with the earth.

Another plan adopted, is to run a furrow with the plough, put in manure, and cover over, either with the plough or hoe.

Others, again, scatter manure over the surface, and dig it in.

An intelligent cultivator, J. A. CORNEAU, remarks: "high manuring is generally admitted to be injurious to the vinous quality of the Grape; or, in other words, it accelerates a larger growth of wood, and a more attractive looking fruit, while the more essential qualities of the grape for Wine making, are very much deteriorated. No substance should ever be used which has a tendency to ferment, or which, in undergoing a chemical change in the soil, would form an acid or a salt of a highly stimulating nature. Vegetable manures, bones, &c., may be used to advantage." *Well rotted* stable yard manure has been used *moderately*, by the writer, with good effects to the plants and the fruit, and without any perceptive injury to the "vinous quality of the grape."

#### DISEASES, INSECTS, AND FROSTS.

The "rot," as it is termed, is the great evil, especially in cultivating the Catawba.

This takes place usually in the latter end of June or early in July, DR. WARDER says, "about the period of stoning," or hardening of the seed," after continued heavy rains, and hot sweltering suns.—It strikes, something like the rust in wheat, suddenly, and with the same disastrous effect to the crop. Various modes of prevention have been recommended, but none yet tried have proved effectual.

The cause is supposed to be an excess of water about the roots of the vine, in any clay subsoil retentive of moisture; sandy soils with a gravelly sub-stratum, are generally exempt from this disease.

The opinions of MR. ELLIOTT, MR. LONGWORTH, and the Fruit Committee of the Cincinnati Horticultural Society, on this subject, are quoted.

MR. ELLIOTT, in the *Horticulturist*, Vol. 2. P. 314, says, "the rot for the past three years has followed excessive rains in July and August. DR. FLAGG, two years since, found a small part of a vineyard where the rot was very slight, (the writer's,) this had not been worked after the spring, and the ground was in such a state, that most of the rains passed off on the surface. Vines planted in rows eight feet apart, in one instance were found not to be affected with rot, but very slightly . . . . The subject has been but little investigated, and therefore all can speculate."

In the same article, page 319, MR. LONGWORTH says: "It is of late years only, that the rot has been so destructive among our grapes; one thing is certain, if we had little or no rain after the grapes are fairly forward, we should see but little of the rot; certain it is, it is continued rains followed by a hot sun, that causes us to look out for the appearance of the rot."

In the able report of DR. MOSHER, MR. ERNST, and MR. KIDD,

the Fruit Committee of the Society for 1848, it is remarked, "some vineyards were injured by the wet weather in July, causing the grapes to rot and fall off: this, however, seems to have been confined to situations where the air had not a free circulation, allowing fogs and vapors to remain too long upon the vines in hot weather, as well as to a tenacious clayey soil; on dry and more airy situations, and where the ground was thoroughly drained, the crop has been fine and fair"

H. W. S. CLEVELAND, of Burlington, N. J., who has a vineyard of two to three acres, and who, Mr. DOWNING says, is one of the most reliable horticulturists in the State, recommends covering the whole surface of the vineyard with shavings, leaves, or coarse grass, to prevent the ravages of insects, and diseases of the fruit—see *Horticulturist*, Vol. 3. P. 113.—In the same Vol. P. 121. "A Jerseyman," in summer pruning, put the leaves and young stems in a trench at the root of the vines—sprinkled gypsum on them, and covered over with earth. This was done at the suggestion of Mr. DOWNING, who strongly recommends it to the vine dressers on the Ohio, with a request that upon trial they "report progress."

And at page 161, of the same Vol., "B.," "of Chester Co. Pa." recommends "special manures," as a certain specific—having tried with success, a mixture of guano, gypsum, and wood ashes.

MR. DOWNING says to "J. D. LEGARE, Aiken, S. C.," in the same Vol. P. 255. "We note your experiment with ashes to prevent rot, but you must not decide against it with one year's trial.—It has been found effectual here at the north, when used along with gypsum."

Two years ago, the writer of this treatise tried ashes on a small scale, but *without Gypsum*; a trench was dug above two rows, the width of a spade, some four inches deep, and two or three inches of leached ashes put in and covered over with earth. No beneficial effect was perceived. The two rows were slightly affected by the rot, as were those adjoining.

Hoeing in autumn, and not stirring the ground at all in the spring and summer, but keeping the weeds cut down, and the surface smooth, that the water may not sink, but pass off rapidly, has also been spoken of as a probable remedy against rot.

Some persons even recommend letting the weeds grow; to say the least of it, this would be slovenly culture.

With a view to test the advantages of wide planting, and high training, in preventing the rot, MR. WERK, has planted on his farm near Cheviot, eleven acres in the Catawba grape, twenty feet apart in the rows each way, and the vines are trained to locust stakes, twelve feet high. Last year they produced fruit for the first time, and were entirely free from rot. But here it must be remarked, that the *first crop*, from young vines, is generally but little affected by that disease. MR. WERK also cultivated the ground between the rows, for other purposes.

The reader is referred to two articles from the pen of MR. LONGWORTH, in the appendix, for his views on this subject. Oct. 21, 1848, and Feb. 18th, 1850.

The "mildew" comes earlier in the season, when the Grapes are about one fourth grown, blighting occasionally a few bunches, and sometimes only the lower end. It is neither common nor destructive.

The "speck," by some persons mistaken for the rot, and by others called the bitter rot, is a large circular spot on the side of the grape, looking as if caused by the sting of an insect, and extending to the seed on one side of the berry, whilst the other is uninjured; but owing to this wound, or speck, the juice will be bitter. This has been attributed to the action of the sun on the fruit when covered with rain or dew drops.

The vine is so remarkably healthy, and of such luxuriant growth in almost any proper soil, that *diseases at the root* are almost unknown here. MR. SCHUMAN states that a white worm resembling the peach tree worm, is sometimes found eating off the young roots of the vine, and MR. MOTTIER has also found and destroyed it—but it is rarely met with in vineyards.

The *Insects* found most annoying, are a *green worm* that feeds on the vines just as the fruit buds appear, and before they blossom, eating off the tender bunches, and doing great mischief if not promptly destroyed. The *Canker, or Measuring Worm* (of which the above may be a variety) is sometimes found on the leaves and young shoots. The *Curculio*, so destructive to the plum, has occasionally been found on the grapes; they can be readily shaken down on a sheet, by a sudden blow on the stake, and destroyed. If ever permitted to get domesticated in a vineyard, this insect would be immensely destructive.

The *Rose-bug*, DR. SHALER says, has been observed in some vineyards in Kentucky, but it is rarely met with here.

A *large brown beetle*, or bug, will frequently sting the young tender branches of the vine in summer, making a wound that subjects the branch to be broken off by strong winds. They can be watched and picked off, late in the evening, or early in the morning. All horticulturists are familiar with the spring and the early fall *caterpillar*, and of course, would not permit either to get a foothold in the vineyard.

*Frost.* Late spring frosts have some years, but not often, been highly injurious, especially to vineyards near *small* streams of water, damp woods, or in cold situations. The most severe within the memory of the writer, occurred on the nights of the 26th of April 1834, 9th May 1838, 7th May 1845, and the 15th April 1849.

In the three first named years, the buds had so far put out, that their loss was not replaced by the pushing out subsequently of the latent, or twin bud, which partially overcame the loss of the first, in the latter year, 1849. These frosts, therefore, nearly destroyed the crop, in situations near moisture.

In warm sandy lands, with a gravelly sub-stratum, the buds are in some years pushed forward prematurely by warm autumns, so as to be killed by severe frosts in winter.

Out of eighty-three vineyards in this county in 1845, DR. FLAGG reported twenty-one much injured by the frost.

VARIETIES OF GRAPES CULTIVATED, AND OF WINE MADE FROM THEM.

1. The CATAWBA is our great wine grape, and stands without a rival. MR. LONGWORTH has offered \$500 reward for a better native variety, and several new seedlings have been produced, but its equal has not yet been found. It is subject to rot.

*Wine*; varying from a clear water color to straw color and pink; of a fine fruity aroma; makes an excellent champagne, and a good dry hock. Requires no sugar in fermentation, if the grapes are well ripened. In the Horticulturist, vol. 2, p. 317, MR. LONGWORTH states:—"Maj. ADLUM had a proper appreciation of the value of the Catawba Grape. In a letter to me he remarked:—"In bringing this grape into public notice, I have rendered my country a greater service than I would have done, had I paid off the National debt." I concur in his opinion."

2. CAPE; this old favorite of former days, is now almost displaced by the Catawba. It is still cultivated in some vineyards, but not extensively—a very hardy variety and but little affected by the rot.

Makes a good *wine*, resembling claret—requires some sugar to be added in fermentation.

3. ISABELLA, a variety much esteemed in some of the Eastern States, particularly about the city of New York—where it ripens better than here. It is almost abandoned as a wine grape, and generally cultivated only for table use; a hardy variety, subject less to rot, than to mildew—in some seasons ripens badly.

*Wine* sometimes good, and resembling a light Madeira—requires a good deal of sugar in the fermentation; say 18 to 24 ounces to the gallon of juice, or "must."

4. BLAND'S MADEIRA; a delicious table grape, resembling the Catawba in its appearance. Too tender for vineyard culture in this climate. On arbors in sheltered situations, it bears well.

5. OHIO, or Cigar Box, is a fine table grape, bunches very large and shouldered, berries small, black, sweet, and without pulp; does well on arbors or trellises, but will scarcely answer for the vineyard culture—requires long pruning.

*Wine*; dark red, inferior in flavor when new, but improves by age.

6. LENOIR; a black grape, bunches large and compact, sometimes shouldered, without pulp, berries small, black, sweet and palatable. Subject in clay soils to mildew and rot.

7. MISSOURI; fruit black, bunches loose and of medium size, ber-

ries without pulp, sweet and agreeable. Sometimes cultivated in vineyards; a good variety for wine.

*Wine*; "makes an excellent wine, somewhat resembling Madeira."

8. NORTON'S SEEDLING; bunches of medium size, compact, shouldered, berries small, purple, sweet, but with a pulp.

*Wine*; inferior.

9. HERBEMONT'S MADEIRA; a good wine, and a pleasant table grape; bunches medium size, berries small, black, and without pulp.

*Wine*; pink or light red, resembling in flavor the Spanish Manzanilla.

10. MINOR'S SEEDLING; a new grape of the Fox family. Fruit; bunches medium size, berries large, pulpy, musky, and rich flavored, very hardy; but little subject to rot.

*Wine*; too musky and high flavored to be pleasant, without mixing with other kinds.

This grape will probably be found a valuable variety for the vineyard.

11. WHITE CATAWBA; a new seedling from the Catawba, but far inferior to the parent.

Bunches medium size, shouldered, berries white, large, round, and pulpy—in taste like the Fox Grape.

*Wine*; not tested.

12. MAMMOTH CATAWBA; another new seedling, resembling the Catawba in color, but not so well flavored. Bunches large, shouldered, berries very large, round, pulpy—in some seasons subject to fall off before ripening.

*Wine*; not tested.

Mr. LONGWORTH in a letter to the Cincinnati Horticultural Society, remarks:—"I have for thirty years experimented on the foreign grape, both for the table and for wine. In the acclimation of plants, I do not believe; for the White Sweet Water does not succeed as well with me, as it did thirty years since. I obtained a large variety of French grapes from Mr. Loubat, many years since. They were from the vicinity of Paris and Bourdeaux. From Madeira, I obtained six thousand vines of their best wine grapes. Not one was found worthy of cultivation in this latitude, and were rooted from the vineyards. As a last experiment, I imported seven thousand vines from the mountains of Jura, in the vicinity of Salins, in France. At that point the vine region suddenly ends, and many vines are there cultivated on the north side of the mountain, where the ground is covered with snow the whole winter, from three to four feet deep. Nearly all lived, and embraced about twenty varieties of the most celebrated wine grapes of France. But after a trial of five years, all have been thrown away. I also imported samples of wine made from all the grapes. One variety alone, the celebrated Arbois wine, which partakes slightly of the Champagne character, would compete with our Catawba.

“If we intend cultivating the grape for wine, we must rely on our native grapes, and new varieties raised from their seed. If I could get my lease of life renewed for twenty or thirty years, I would devote my attention to the subject, and I would cross our best native varieties with the best table and wine grapes of Europe. We live in a great age. Discoveries are daily made that confound us, and we know not where we shall stop. We are told of experiments in mesmerism, as wonderful as the grinding over system would be; but I fear the discovery will not be brought to perfection in time to answer my purpose, and I must leave the subject with the young generation.

“I have heretofore wanted faith in the doctrine of French Horticulturists, that to improve your stock of pears, you must not select the seed of the finest fruit, but of the natural choke pear. I am half converted to their views. The Catawba is clearly derived from the common Fox grape. In raising from its seed, even white ones are produced, but I have not seen one equal to the parent plant, and in all, the white down on the under side of the leaf, and the hairs on the stalk, common to the wild Fox grape, are abundant.”

#### DURABILITY OF A VINEYARD.

The oldest vineyard in this county is one of Mr. LONGWORTH'S, on Baldface.

It was planted 27 years ago, on ground trenched with the spade 2 feet deep. It is still in vigorous bearing, and has nothing to contend with, but the rot in wet seasons.

Several other vineyards in the county are from 15 to 18, and a few 20, years old.

Dr. MOSHER in an able article on Grape Culture, in the “Farmer and Gardener,” vol. 5, p. 206, says:

“Vineyards planted at Vevay, in Indiana, by the Swiss, merely on deeply ploughed ground, failed in fifteen years. When the ground is ploughed eighteen inches deep, it may bear tolerably well for twenty years; but a vineyard planted on ground well trenched two feet deep, and properly drained and cultivated, may be expected to last fifty or one hundred years, or perhaps more. The crop, also, is much more certain when the ground is well trenched, not being so liable to suffer from droughts or rainy seasons.”

Mr. MOTTIER is of the opinion that fifty years is as long as a vineyard will last in this country, even with the best attention.

#### TO RESTORE PREMATURE DECAY IN A VINEYARD.

It has been suggested, that when the ground was prepared originally with the plough, and the vines planted too close together, the vineyard might be restored to vigorous bearing, by taking up every other vine in the close planted rows, and trenching the ground for half the distance between the rows  $2\frac{1}{2}$  feet deep. How far the partial root pruning thus given to the vines might affect them, is uncertain. The experiment might be tried on a small scale.

The old system of renewing worn out vineyards, by trenching between each row, and forming new plants from layers, is a good one; but two or three seasons are lost in adopting that method.

## MAKING WINE.

### THE WINE PRESS

Is made somewhat like a "screw cider press." An iron screw, three to four inches in diameter is used—either in a strong upright frame, or coming up through the centre of the platform (the latter is the cheapest, and most simple in construction.) A strong, tight, box platform 6 or 7 feet square, of 2 or 3 inch plank, 6 or 8 inches high at the sides, is wedged into heavy timbers; and, in this, a box of 1½ inch boards, 5 or 6 feet square, perforated with holes near the lower edge, 8 or 10 inches high at the sides, (made to be readily taken apart,) is placed, to contain the mashed grapes. Boards to fit loosely inside of this box, and lay on top of the pile of mashed grapes (or "cheese" as cider-makers call it) and pieces of scantling to lay across to receive the pressure, complete the press.

The power is applied by a strong lever attached to the nut or female screw, and the juice runs out through a hole, with a spout, in front of the platform, into a large receiving tub.

N. B. Doctor WARDER suggests an improvement, adopted by Mr. RENTZ, in his wine press. Inch strips are placed on the platform, and boards perforated with holes, laid on them as a bottom for the box that contains the mashed grapes.

### GATHERING AND PRESSING THE GRAPES.

The grapes should remain on the vines until *very* ripe, "dead ripe" as some express it. Pick off all decayed or unripe berries from the bunches, which are then bruised in a mashing tub, (a vessel like an inverted churn,) or passed through a small wooden mill, breaking the skins and pulp, but *not* the seeds. They are then emptied into the press, and the screw applied, until the pulp and skins are pressed dry, or all the juice is extracted. The outside of the cheese has to be cut off two or three times, and thrown on the top, and re-pressed, in order to extract all the juice. The juice or "must" as it is called, is then put into clean casks in a cool cellar, for fermentation.

Every thing connected with the making of wine, requires great care and neatness. The press, vessels, and casks, must be perfectly clean; and, in short, as much attention to cleanliness must be observed, as in making butter, else the wine will lose the fine *fruity, aroma and flavor* of the *grape*, which is to give it *character* and make it *sell*.

The "pummies" (skins and seeds after being pressed) is thrown on the manure pile; or, distilled, to make brandy.

Mr. LONGWORTH says, "To insure success, we must observe great care in selecting the fruit. Select good sweet casks, and use cleanliness in expressing the juice, and skill in the process of manufacture and preservation of the wine. Keep it in a cool cellar, cask tight, and carefully rack the same yearly, till the wine is perfectly fine, and fit for bottling. For wines, that have no alcohol added, require tight casks and cool cellars, to keep them sound. They are less subject to run into the acetous fermentation with us, than they are in France and Germany. To the ropiness of which they complain, our wine is not subject. It is a common saying in France and Germany, that 'a poor man cannot make good wine.' The reason is obvious. The rich man not only has more influence in obtaining favorable opinions, but he also uses more care and skill in the manufacture. The poor man must sell his wine as soon as made. The rich man retains it till it is improved by age, and never sells any under his own name, but that which proves to be of superior quality. The vintage of bad years, is sold without a name. So much depends on manufacture and reputation in Europe, that wine from the same variety of grape, and the vines divided by a footpath in the same vineyard, have very different reputations. The one will bring \$18 per dozen, where its neighbor will not command \$3. Many commence the manufacture at the lowest price, and in a few years by great care and skill command the highest."

In the Horticulturist of January last, a writer from Mississippi recommends the use of *whisky barrels*, in wine making. Perhaps they might answer in Mississippi, but it would be a great mistake to use them here. The taste of the whisky would destroy the flavor of our Catawba grape,—which we prize so highly in our wine,—and render it unsaleable. To avoid giving any extraneous taste to the wine, the casks should be at first, *new*, filled up with pure water, and soaked for 10 or 15 days; then, well scalded out, and fumigated with sulphur. In using them afterwards, they should be thoroughly cleansed every year, before the wine is put in them to ferment.

#### FERMENTATION.

This process as generally pursued here, is very simple. The casks are filled up within 3 or 4 inches of the bung, and the bung put on loosely. The gas escapes without the wine running over. Usually, in two to four weeks, the fermentation ceases, and the wine becomes clear; then *fill up* the casks and *tighten* the bungs.

In February or March, rack off the wine into clean casks.

A second, but moderate fermentation, will take place late in the spring; after that the wine fines itself, and is ready for sale; and if the casks are kept well filled, and the bungs tight, it will improve by age for many years. *Use no brandy or sugar*, if the grapes are sound and well ripened.

The safest method of keeping this wine is in bottles, well corked and sealed, and laid on their sides.

The fewer rackings it receives, and the less it is exposed to the air, the sweeter and better it will keep; and retaining the fine aroma flavor of the grape, and acquiring but little acidity. It will do to bottle in about a year after it is made, but two years would be better. Never bottle *before* the *second* fermentation.

As the process of fermentation is a matter of the greatest importance in making wine, the reader is referred to the Appendix, for an able article on the subject, from the pen of Mr. LONGWORTH.

#### THE CHARACTER OF THE WINE

Has suffered much from want of skill, and careful attention in making it, as well as from neglect, in not keeping it in cool cellars; but, that it *can* be made *good*, and when so made, enjoys a high reputation both at home and abroad, the following extracts will clearly show.

At the autumnal exhibition of the Cincinnati Horticultural Society in 1843, the committee, after passing judgment on the wines exhibited, remark: "The committee have great confidence in saying, that these fine specimens of pure native wines, have placed it beyond a doubt, that the time is not far distant, when our surrounding hills will be as celebrated for good wine, as any part of the valley of the Rhine."

At the conclusion of a very able report by Dr. FLAGG, chairman of the same committee, May 2, 1846, an analysis of wines by Dr. CHAPMAN, is given.

I. Catawba, from N. LONGWORTH'S vintage, 1845, alcohol 11.5. water, 88.5, equal 100.

II. Catawba, from RENTZ'S vintage, 1845, Alcohol, 11, water 89—equal 100.

III. Hockheimer, Rhine wine, 7 years old, alcohol 7.5—water 92.5—equal to 100.

IV. Red wine, (Cape) P. BATES' vintage, 1845, alcohol, 9.12—water 90.88—equal 100.

Showing a decided difference in favor of the American wine:"

The above wines were the pure juice of the grape.

Mr. LONGWORTH, Horticulturist, vol. 2. p. 318, in an article to C. W. ELLIOT, written in 1847, remarks:

"My own impression is, that in skillful hands, our Catawba will make a wine superior in flavor and aroma to the best French Champagne imported, or that manufactured in London from *perry*, or, in New Jersey from *cider* and *green corn*. The aroma of the Catawba grape continues in the wine in all its stages.

"I made the first Champagne five years since. It was produced by chance, and induced me to erect a building for the manufacture, and to send to France for a manufacturer; I shall be content, if we

can always make as fine a wine by design, as was then made by accident."

In a communication to the Cincinnati Horticultural Society, Sept. 10, 1845, Mr. LONGWORTH remarks:

"We have prejudices to overcome, 'for a prophet is not honored in his own country.'

"We become fond of the flavor of particular wines from a continued use of them, as some of our citizens have of the bilge-water taste of the Spanish Manzanilla. Our domestic wines have a flavor of their own, and with wine drinkers accustomed to the particular flavor of other wines, it will require time to form a taste for them. It was so with our German population; for a time they gave a decided preference to German wines. They now greatly prefer the domestic.

"For the manufacture of a fine dry Hock, I consider the Catawba unrivalled.

"But our Madeira and Sherry wine bibbers would say as Mr. SCHULTZ's friends told him in Baltimore, thirty years since, when as a new article in this country, he gave them as a great treat, some old dry Hock. He said nothing, but looked round expecting to see smacking of lips, and hear exclamations of admiration. But the universal cry was, '*What a pity, Shultz, your cider is sour!*'"

"At a comparison of domestic wines from our different vineyards, by a dozen of Hock-drinkers, selected for the occasion, the gentleman who acted as chief of the judges, was a great admirer of Spanish Manzanilla; and with a view to test their judgment, I slipped in a bottle of his favorite wine. Whilst his brethren were tasting the wine and expressing their opinions, their leader slowly tasted each bottle, but said not a word until he had tasted the whole. He then remarked that 'he should reserve his opinion as to the best, but would promptly decide which was the *worst* bottle on the table,' and placed his hand on the Manzanilla. I told him I concurred in his opinion, but he might change his mind when advised that it was his favorite Spanish wine, and from the same cask that he had always pronounced a superior article.

"A gentleman from an Eastern city, a few evenings since, very gravely and sincerely gave me an instance which took place in his own presence. Their wine club had recently broached a pipe of high priced wine, with which they were much delighted, till a conspicuous member observed that he detected a slight taste of copper—a brother member admitted a slight peculiar flavor, but insisted that it was leather. The President of the club was referred to, who promptly decided that it was a compound of both copper and leather. The debate waxed warm, and all three had their adherents, when it was decided to draw off the wine from the pipe in the presence of the Society. This was done, and at the bottom immersed in the sediment was found a small copper key with a short strip of leather attached to it!" Mr. LONGWORTH remarks, "I presume the East-

ern gentleman took it for granted that Don Quixote had never got as far west as our back woods."

A gentleman in our own city, in whose judgment in wines great confidence was placed, could never be induced even to taste our domestic Hock, though a great admirer of the imported article. On two or three occasions I knew him to take a glass, and praise it highly; but the moment that a smile from the host told him of his error, he backed out, *readily discovered* his error, and could not be induced to make a further trial. But on a certain occasion a friend invited him to dine with him, and drink a glass of superior Hock, recently sent him as a present. The bait took—the gentleman praised the wine highly, and pronounced it equal to any he had ever drank, and proved his sincerity, by not leaving the table till he had two bottles under his belt; and for the next month, never met his host, without enquiring if all his fine wine was gone, and expressing a great desire to give it a second trial. After he was fairly committed, he was told that it was the native Catawba. From that day he knocked under, and acknowledged his prejudices had blinded him."

One of the most distinguished physicians and Horticulturists in the State, Dr. KIRTLAND, in his article on the cultivation of the grape, in the "Western Farmer," vol. 3, p. 134, (1842) observes:—"The point has been satisfactorily settled, that the rich limestone formations in the south-western part of Ohio, are as well adapted to this purpose as any locality on the earth, unless it be in some volcanic regions enjoying a more uniform climate. Evidences abundant can be brought to sustain the position, that within half a century, Cincinnati will be celebrated for her 'vine clad hills.'

"I look upon this subject with great interest in another point of view. During an extensive practice in the medical profession, for more than twenty-five years, I have frequently found it important to employ wine and other diffusible stimulants as medicines. Whatever other medical men may say or think of the matter, I must state, that I cannot in all instances find in the *Materia Medica* a substitute for them; and while I am disposed to go as far as any one, in excluding strong drinks from the daily use of people in health, I must express my satisfaction, at finding we can produce in our own country, a pure, healthy wine, well adapted to medical purposes, and far superior to the adulterated, poisonous foreign compounds, that often find their way to the bedsides of the sick, under the names of 'Lisbon,' 'Madeira,' &c. &c."

In the *Horticulturist*, vol. 1, p. 53, Mr. DOWNING says:—"Mr. LONGWORTH of Cincinnati very obligingly sent us last month a case of American wine, the product of his vineyards on the banks of the Ohio.

"We have been in the highest degree pleased with these wines. They severally are the product of the Catawba, Cape, Isabella, and Missouri grapes—all native sorts. The very best is the Catawba,

of which we received samples of several vintages. The character of the wine is that of excellent hock, like the better class wines of the Rhine.

“We sent a bottle of this Catawba wine to one of the oldest and most respectable wine houses in this country, Messrs. BININGER & Co., New York. These gentlemen wrote us in reply:—‘We are very much gratified in having an opportunity of tasting this wine, which is the first American wine that deserves the name of wine, that we have ever seen. It strongly resembles hock, and we should have pronounced it such.’”

Mr. DOWNING farther says:—“These wines are entirely pure, without the addition of alcohol, and the temperance cause has every thing to gain, and nothing to lose, by a general production and consumption of such a wholesome beverage. This, every one familiar with the hock and claret districts of Europe, where ardent spirits are not used, will cheerfully bear testimony to. Indeed until such wines can be produced, and afforded as they soon will be, pure, and at low prices at home, only a small class of persons in this country will ever know what pure light wines really are; what is sold as such by the retail dealers in the country generally, is so brandied and manufactured, as to become worse than ardent spirits itself.”

Dr. FLAGG, in his able report to the Cincinnati Horticultural Society for 1846, justly observes:—“I am confident that the introduction of pure light wine as a common beverage, will produce a great national and moral reform—one that will be received by our temperance brethren ere long as a national blessing—one that will complete the work they have already begun. The temperance cause is rapidly preparing public sentiment for the introduction of pure American wine. So long as public taste remains vitiated by the use of malt and alcoholic drinks, it will be impossible to introduce light, pleasant wines, except to a limited extent; but just in proportion as strong drinks are abandoned, a more wholesome one will be substituted. Instead of paying millions to foreigners, as we now do, for deleterious drinks, as brandy and wines, let us produce from our own hill-sides a wholesome beverage that will be within the reach of all, the *poor* as well as the rich.”

Mr. W. R. PRINCE, of New York, in his very able article on American vineyards, in the *Horticulturist*, vol. 1, page 393, remarks: “The pure juice of the grape is an innocent beverage, grateful to our senses, and nourishing to the system. That man has abused and perverted its use, is no argument against the article in its pure and natural state, for what gift of Providence is there, that has not been abused? In every country where wine is produced in abundance, intemperance is scarcely known, and in this respect the vine-growing countries will compare most favorably with their more northern neighbors, where alcoholic drinks so abound.”

*Extracts from Reports of the Committee on Wines, to the Cincinnati Horticultural Society for 1843.*

Mr. MOTTIER'S Catawba, vintage of 1837—was adjudged the best.

Mr. RESOR'S Catawba, of 1839, "a wine of good capacity," "by age, will become of a high character."

Mr. MOTTIER'S and Mr. RESOR'S "Cape" wines, highly spoken of.

*Report for 1844.* The committee met at the house of the President.

Thirty-nine bottles were exhibited; some pronounced very fine, the preference given to the Catawba. A few bottles of foreign wines were intermingled, but generally detected, and pronounced inferior to the native. Private marks were placed on all the bottles, known only to the President and Secretary.

This test was very creditable to the discrimination of the judges, and favorable to the quality of the native wines. Three gentlemen from wine countries in Europe, were added to the committee, MESSRS. WERK, REHFUSS, and BRACHMAN, who fully concurred in the opinion of the superiority of the native wine.

[See Farmer and Gardner, vol. 5, page 255.]

At an examination of wines of the vintage of 1847, by the wine committee of the Cincinnati Horticultural Society, in March 1848, 36 samples were presented, most of them of excellent quality.

The prize of a *silver cup* was awarded to Mr. SCHNEICKE, for the best Catawba wine; a certificate to Dr. MOSHER, for the second, and to Mr. RENTZ, for the third best.

A still larger number of samples was presented at the examination by the committee, in April, 1849, of the vintage of 1848, viz. 51 bottles of *Catawba wine*. The *silver cup* was awarded to T. H. YEATMAN, and Certificates to Mr. LONGWORTH, and BUCHANAN, for the second and third best. The wines presented this year were pronounced "excellent" for new wines.

Samples of wine from HERBEMONT'S *Madeira Grape*, CAPE, MINOR'S *Seedling*, MISSOURI, OHIO, ISABELLA, and NORTON'S *Seedling*, were presented by Mr. LONGWORTH, and were ranked in quality by the Judges, *in the order here named*.

*Report for 1846.* "The committee on American wine having examined the specimens sent in to the Annual Exhibition of the Cincinnati Horticultural Society, held September 9th and 10th, beg leave to submit the following brief Report:

"The number of specimens, although greater than at any former Exhibition, was not as large as might have been anticipated at this time, there being such an interest taken, and the amount of capital so great invested, in the cultivation of the vine, the annual product of which, in five years, cannot be less than one hundred thousand

dollars to this county alone. In order to do ample justice, the specimens were removed to a good wine cellar, where they remained ten days before they were examined by the hydrometer, and every other necessary means taken to give impartial judgment."

CLASS 1st.—No. 1. Pure wine; vintage 1845. Spec. grav. .78. A most excellent wine; will improve by age.

No. 2. Four oz. sugar to the gallon. Spec. grav. .76½. Much inferior to No. 1, the pure wine.

CLASS 2d.—No. 1, with sugar; vintage 1841. Resembles some of the light Mediterranean wines; does not bear comparison with the pure wine.

No. 2, with sugar; vintage 1841. Resembles some of the imitations of Madeira. Spec. grav. .76.

CLASS 3d.—No. 1. Pure wine; vintage 1845. Spec. grav. .74. Good wine, rather acid; thought not to have been put into perfectly sweet bottles. Not quite equal to No. 1, in class 1st.

CLASS 4th.—No. 1. Pure wine; vintage 1845. Not able to judge in consequence of its being pricked.

No. 2. Pure wine; vintage 1845. A fair light wine; resembles some of the lower grades of French; believed care was not taken in picking the grapes, and in fermentation.

CLASS 5th.—No. 1. Pure wine; vintage 1845. Spec. grav. .75½. A very superior wine; resembles very much the white hermitage, which may be considered a very great compliment. This wine was made with great care; the sound and perfect berries being picked from the stems, and every other necessary process received equal attention.

CLASS 6th.—No. 1. Pure wine; vintage 1845. Spec. grav. .75. May have been originally good; believed to have been put into an impure cask, which formerly contained foreign wine, either French or German, which very much changed its flavor.

CLASS 7th.—No. 1. Pure wine; vintage 1845. Not able to judge, being pricked, and not properly treated. Perhaps part of the berries were unripe, and other necessary care not taken.

Your committee would remark that great care and attention are necessary in order to produce good pure wine; much more so than any other other agricultural product. The sound perfect fruit should be kept separate from that which is imperfect, and the wine never allowed to be put into any thing but perfectly *pure sweet casks* or *bottles*; as a very trifling neglect may cause a great loss on wine. Much also depends upon fermentation, which requires great attention, and after being completed, terminates the business of the cultivator.

Some of the specimens for exhibition, were imitations of foreign wines, which your committee very much regret, being desirous to establish a character for American wine, which would soon be accomplished, by giving it a fair trial upon its own merits. If American wine should ever become a substitute for the present poisonous and

unwholesome drinks, it must be done by keeping and using it perfectly pure, and avoiding all adulterations and imitations whatever.

“Your committee award the first premium to Mr. G. SLEATH; pure wine; vintage 1845; spec. grav.  $.75\frac{1}{2}$ ; and the second premium to Mr. L. RHEFUSS; pure wine; vintage 1845.

M. FLAGG, *Ch'm Committee.*”

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GRAPES RAISED AND EXHIBITED BY N. LONGWORTH, IN 1846.

Ohio,	Herbement,	Missouri,
Catawba,	Giant Catawba.	Helen,
Graham,	Minor's Seedling,	Lake, (a bad bearer.)
Elsinburg,	Norton's Virginia Seedling,	Guignard,
Clarkson's Eastern Catawba, (a good grape but a bad bearer.)	Improved Purple Fox,	White Seedling Catawba,
Indiana, (of no value.)	Red Fox, (of no value.)	
Black Fox, (of no value.)	Virginia, “ “	
White Fox, “ “		
Piqua, “ “		

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*Report of the Wine Committee of the Pennsylvania Horticultural Society, Philadelphia, for September, 1848.*

“The committee feel under obligations to Mr. LONGWORTH, for his kindness in presenting them with an opportunity of tasting the best specimens of American wines they have yet met with. And they are pleased to find that the untiring zeal and energy with which he has for so many years, and at great expense, prosecuted the subject of wine-making, have been crowned with so much success.

“On motion, ordered that a vote of thanks be tendered to Mr. LONGWORTH, for specimens of his fine wines presented to the Society.”

The delegation from that Society to the Cincinnati Horticultural Society's exhibition in September 1848, reported on its return, “various kinds of grapes; both native and foreign were exhibited in great abundance.

“But the favorite with them, and one which seems to be peculiarly adapted to their soil and climate, is our native Catawba. It is this grape from which they make their choicest wines. Your delegation had the pleasure of tasting, at the Horticultural Hall, a sample of Mr. LONGWORTH's far-famed “Sparkling Catawba;” and a more exquisitely flavored champagne, it would be difficult to meet with among the most celebrated foreign brands.”

## STATISTICS.

### THE COST OF ESTABLISHING A VINEYARD.

The cost of establishing a vineyard depends much on the position and soil; and on the resources for labor within the family of the proprietor; or, of the tenant who takes the ground on a 12 or 15 years' lease. It has been usual to give a piece of land of say 15 to 20 acres, with a small house on it, to a German vine dresser, on a lease of 12 to 15 years, binding the tenant to put in a certain quantity in grapes each year in a proper manner—and at least five or six acres within as many years, he paying the proprietor one-half the proceeds of the vineyard annually after bearing—and one-half of any fruit raised from trees furnished by the proprietor, who also furnishes roots or cuttings for the first two or three acres planted in grapes.

Mr. LONGWORTH observes:—"I would not recommend any individual to hire hands, and cultivate the grape extensively for wine, with a view to profit. But I would recommend landlords to rent from 15 to 20 acres to Germans, for vineyards and orchards, on shares. We have more to learn in the manufacture of the wine, than in the cultivation of the grape. And I would recommend our German vine-dressing emigrants, to purchase or lease a few acres of rough, cheap land on the Ohio, or near it, with a view to the cultivation of the grape. Land will be suitable for it, that is too rough for the plough, and eight or ten acres will give employment to a whole family."

No accurate statistics of the cost per acre of planting a vineyard can be found, except those of the writer, (where every thing was paid for in money, and a regular account kept;) and of Mr. RESOR'S vineyard.

Cost of a vineyard of six acres—fourteen thousand four hundred vines:

Trenching, two feet deep, \$65 per acre, - - - -	\$390 00
Sodding avenues, - - - -	60 00
Cost of 30,000 cuttings, at \$2,50 per thousand, - - -	75 00
Planting, - - - -	70 00
Fourteen thousand five hundred locust stakes, at \$3 per hundred,	435 00
Setting 14,500 stakes, - - - -	55 00
	1,085 00
Cost of attending the first year—vine dresser, \$216, and a hand for one month, \$15, (and board themselves,) - - -	\$231 00
Second year—vine dresser, \$216, a hand for two months, at \$15 per month, - - - -	256 00
Cuttings, after first year, to replace failures, say, - - -	20 00
Hauling, carting, &c., - - - -	68 00
Contingencies, &c., - - - -	150 00
	1,800 00
Average cost, say, \$300 per acre, - - - -	1,800 00

The vineyard being on a gentle declivity did not require *benching*, which would have been more expensive than the draining by sodded avenues—nor did the ground contain stone enough to add to the expense of trenching, which in some positions is a very serious item.

By proper economy, a man may have a vineyard of several acres in a few years, without feeling the expense to be burdensome. Commence by trenching one acre in the winter, and planting it out in the spring; next year another acre, and so on, for five or six years. After the third year, he will have his own cuttings from the first acre, and also grapes enough to pay for the cost of planting the succeeding additions to his vineyards.

If he has suitable timber on his own land, the stakes can be got out in the winter with but little outlay in money. By this course the cost of a vineyard of six acres would not be half as much as the foregoing estimate.

In Mr. RESOR's article, published here in full, will be found valuable statistical estimates of the cost of the vineyard, and also of its product.

#### MR. RESOR'S VINEYARD.

Upon referring to some memoranda of my father, I find amongst others, the following account kept of the produce of his vineyard since 1837. As several of our members are cultivating the vine, I thought it would be interesting, as it is difficult to obtain a statement of the kind, kept minutely for a series of years.

It shows the actual produce, and the certainty of the crop before any other fruit in this latitude, and the difference between the Catawba and Cape, as to the yield and certainty. The Cape having borne a first rate crop for nine successive years, the Catawba failing occasionally, from rot and the effects of insects.

The vineyard has a southern exposure, fronting on the Ohio river; it was planted with rooted plants in 1834, and contained at that time, 1775 vines, placed in rows four feet apart, and three feet distance in the row—the ground being previously trenched, and the stones taken out to the depth of two feet.

In the fall of 1837, the first crop was picked as follows:—163 bushels of grapes from which was made 667 gallons of wine. At this time there were 1125 Isabella and Cape vines, yielding 113 bushels, making 469 gallons, and 630 Catawba, yielding 51 bushels, making 198 gallons.

1838, Vintage, September 10,	produce	327 galls.
1839, " " 5,	" "	440 "
1840, " " 20,	Cape 240	" "
	Catawba 65—305	" "

This year, (1840,) most of the Catawba rotted on the vines. From this time there were 2300 vines, about one-half of each kind.

1841 Vintage, Sept. 15,	produce 237 galls.	Catawba.
" " " " " "	275 "	Cape.

512 gallons.

1842	Vintage,	Sept. 12,	produce	166	galls.	Catawba.
"	"	"	"	319	"	Cape.
485 gallons.						
1843	Vintage,	Sept. 15,	produce	250	galls.	Catawba.
"	"	"	"	288	"	Cape.
538 gallons.						
1844	Vintage,	Sept. 15,	produce	108	galls.	Catawba.
"	"	"	"	306	"	Cape.
414 gallons.						
1845	Vintage,	Sept. 9,	produce	283	galls.	Cape.
"	"	"	"	349	"	Catawba.
632 gallons.						

About one-eighth of the Catawba grapes were destroyed by bees and other insects after ripening.

The quantity eaten by three families, is not taken into this account.

The ground has always been thoroughly hoed in the spring, and kept free from weeds, and never manured, until last winter, when the ground was covered and in the spring dug in. From the result this season, manuring would seem to pay well, as the vines are in better condition than they ever were, after yielding a heavy crop.

The vines have been trained to stakes, and the bearing wood cut out, after having borne one season, leaving two shoots, trained the same season, one to form the bearing hoop or bow, and the other cut to two eyes, to propagate wood for the next year; the vine never having but the hoop and the two eyes left for fruit each year, growing at the same time.

This year the ends of the vines have been nipped, and the suckers taken out four different times.

The following estimate I have made from what it has cost this year, and it is not far from the actual expense, although the labor has been done by the hands doing the other work on the farm; and in making wine, extra hands were always employed. By planting cuttings, and preparing the ground by subsoil ploughing, when it can be done, the expense would be lessened. The price is what the wine was sold at from the press this season, and is a low estimate.

## E S T I M A T E .

2,300 Vines, at 6c.,	-	-	-	\$138 00
2,300 Poles, at 2c.,	-	-	-	46 00
1,000 " replaced,	-	-	-	20 00
Trenching ground and planting,	-	-	-	80 00
Manuring last Fall,	-	-	-	30 00
Two months' work, each year, 9 years,	-	-	-	225 00
Extra work in making wine,	-	-	-	150 00
Interest on investments before crop,	-	-	-	15 00

704 00

Cr. by 4,300 gallons wine, at 75c. 3,229 50

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 \$2,525 50

The expense of cultivation, previous to the first crop, is not accounted for, nor are press, casks, &c.; but the actual expense of cultivating an acre of grapes, where persons are hired to attend to other work, would amount to but very little, as but a short time is required to attend to clearing the vines during the season.

September 27, 1845.

WM. RESOR.

From Mr. RESOR's statement it appears that his father's vineyard of 2300 vines, equivalent to about an acre planted 3 feet by 6, cost him \$284, to which add labor for two years, \$50, and it makes \$334; or \$34 more than the preceding estimate of \$300 per acre. But Mr. RESOR used two years old vines, which cost about \$125 more than cuttings could have been bought for, which would reduce his acre, had he used cuttings, to \$209, when first in bearing.

It might be fair to range the cost of vineyards in *trenched* ground, at \$200 to \$350 per acre—depending on the economy and good management of the proprietor, and the situation of the vineyard.

Dr. MOSHER, one of our most intelligent practical horticulturists, estimates the cost of trenching two feet deep at \$80 to \$125 per acre, according to the nature of the ground.

“On the banks of the Ohio, two miles below our city, I yesterday saw some Germans at work, trenching, banking, and walling one of the most steep, rugged, and stony hills in the county. To have hired the work done by the day, would have cost from \$300 to \$400 per acre. When completed, it will be a lovely spot. The cost to them is a trifle, for the work is done during the winter, when they have no employment. They raise their own hominy and sour crout. And it will not be a serious loss if they occasionally partake of a quarter of lamb, as they can buy it at 10 or 12 cents per quarter.”

N. L.

#### COST OF ATTENDING A VINEYARD.

To the proprietor or the tenant who is his own vine-dresser, this will be small, especially if he has a family that can assist him; but to those who have to hire every hand, the following statement will be found pretty accurate. For a vineyard of six acres—

Vine-dresser per year, and board himself,	- - -	\$240
Hands to assist in pruning, say,	- - -	25
“ “ “ in spring culture,	- - -	40
“ “ “ in summer culture,	- - -	55

Or \$60 per acre, \$360

If the cuttings can be sold at \$2 to \$2,50 per thousand, it will reduce this about \$100.

The cost of replacing stakes, repairing avenues or benches, and manuring every third year, may be offset against the cuttings.

Mr. YEATMAN, who keeps an account of his vineyard expenditures, concurs in the accuracy of this estimate.

## COST OF MAKING THE WINE.

This will again depend on the force that the family can turn into the vineyard. But when every thing has to be done by hired labor, the writer can state from experience, that gathering the grapes, and pressing them, and filling the juice into casks, ready for fermentation, will cost, for an average crop, \$25 to \$30 per acre.

MR. LONGWORTH remarks:—"The cultivation of the grape for wine will be profitable where persons do their own work.

"It is seldom that any farming pays well where there is much hiring of hands. Our German emigrants can cultivate the grape to most profit, for the greater part of the work in the vineyard is performed by their wives and daughters, without interfering with household affairs. A greater profit would accrue to a man of observation and skill, who would devote much time to the subject, be certain to have clean casks, gather his grapes at the proper moment, use great care in picking, selecting, and pressing, and a clean press, a cool cellar, care and skill in the fermentation, racking at the proper time, and always keeping the casks full, never to bottle it till four or five years of age, and never to sell any wine with his own name, in seasons when the wine is not of the best quality."

## PROBABLE PRODUCT PER ACRE.

This of course will vary with the season, and with the number of vines to the acre.

At the distance of 3 by 6 ft. 2420 vines are planted in an acre. They will yield in fair seasons 300 to 400 gallons, in very good years, more. A probable average for 8 or 10 years, with but little rot, would be about 250 gallons—and with a reasonable allowance for rot, frosts, &c., 200 gallons might be expected as a fair average per acre for a series of years. This is also Mr. LONGWORTH'S opinion. But even then, bad seasons must not be *too* frequent, or the average will be still further reduced. In the report of Dr. FLAGG, May 1846, he makes the average yield per acre, for 1845, about 200 gallons, and the vineyards suffered much from the frost and the rot that year.

The Doctor says:—"There are in this county 83 vineyards, containing  $247\frac{3}{4}$  acres; 114 being in bearing, from which 23,219 gallons of wine were made last year. Many of the vineyards bore for the first time last year, and more than one-half of the crop was cut off by the frost and rot." The Doctor estimated the average yield for five years in succession, with proper care and attention, at 400 to 450 gallons per acre—but this is entirely too large.

In Mr. RESOR'S statistics, it will be observed that in nine successive years, after his father's vineyard commenced bearing, viz: from 1837 to 1845 inclusive, it yielded on an average, about 480 gallons to the acre, each year. This vineyard, however, was small, very favorably situated, and carefully attended, under the supervision of a judicious and careful proprietor, and the product, should by no means be assumed as a general average for the county.

Mr. YEATMAN fixes the average higher, but judges from his own vineyard which is very favorably situated, carefully attended, and contains a little over 3000 vines to the acre. The general average per acre would be about 2,400.

A bushel of grapes on the stem will yield 3 to 3½ gallons of juice—some have produced 4—but this is rare. In measuring, the bushel is “heaped,” or liberally rounded on the top, not *strict* measure.

Paper calculations of profits are often deceptive, and sometimes mislead those who are not accustomed to think and act from their own judgment; but for the sake of condensing the forgoing estimates, the following is given as a

RECAPITULATION.

Cost of a vineyard per acre, say \$250, interest per annum	- -	\$15 00
Cost of attending per acre,	- - - - -	60 00
Cost of making the wine,	- - - - -	25 00
		\$100 00
Probable average annual product—200 gallons of wine at, say, \$1 00		\$200 00
		\$100 00
Supposed profit per acre,	- - - - -	\$100 00

But should the wine only bring 75 cts. per gallon, it would still leave a profit of \$50 per acre, which is large enough and more likely to be the sum realized.

It will be observed that no allowance is made in the above calculations for interest in the cost of the press, or the vessels and casks used in making and fermenting the wine. The press will cost \$60 to \$150, and express 160 to 300 gallons per day; the vessels \$10 to \$15; and the casks, 4 to 8 cts. per gallon, as to size and quality. The other estimates, however, are made liberal enough to cover all this.

The loss in quantity in making the wine, by fermentation, lees in racking, and by evaporation, will be about ten per cent.

SALE OF THE WINE.

Here the cultivator is at a loss, and will be, until wine-houses are established in the city, for the express purpose of purchasing the product of our vineyards, and preparing it for market, for consumption at home and elsewhere.

Mr. LONGWORTH justly observes, that “those who commence this business, and conduct it properly, will make fortunes by it. For that the grape culture will eventually succeed and be profitable, and the wine gradually grow into public favor, there can no longer be a doubt.

“Thus far our wine has met with a ready sale in our own city, but with the contemplated extension of the grape culture in this vicinity, we shall soon be compelled to look abroad for a market.”

Suitable cellars are required for the purpose, and in this Mr. LONGWORTH, Mr. YEATMAN, and Mr. REHFUSS, have set laudable

examples. Their cellars are large, deep, and admirably adapted to keep and ripen the wine. This is the important matter with light wines; care and a cool cellar are required, until they are sufficiently ripened, to prevent acidity by exposure to the air. Every analysis made, proves our native wine to be 3 to 4 per cent. stronger than the same class of foreign importation.

“Before the cultivation of the vine can be carried on extensively and profitably, we must have a sure market for the wine as it comes from the press; so that vine-dressers can sell their wine as readily as the farmer his wheat. At present it is mostly sold to our German population, at fair prices. Many, who are commencing vineyards, without any knowledge on the subject, depending entirely upon others for their success, may have cause to regret it when too late. In commencing the cultivation of the vine, persons should consider the absolute necessity of a certain market for the wine as it comes from the press, and also of producing a quality of wine that will repay for four or five years of anxious labor and great expense. I began the investigation of the subject of making American wine twelve years since; and, after having satisfied myself of its practicability, my great anxiety has been to secure a ready market for the wine. The farmer who grows wheat, must live where he can readily send it to market, if he expects to realize a fair compensation; so the cultivators of the vine must depend upon the wine-merchant to purchase their wine. It is as much the business of the latter to prepare it for market, as it is of the miller to grind the wheat. The cultivation of the vine, with its entire management, until he turns out the pure juice of the grape, belongs to the vine-dresser, and the mixing and preparing it for market to the wine merchant, the latter being a distinct and separate business.”—*Dr. Flagg's Report.*

In a Report to the Cincinnati Horticultural Society, Mr. LONGWORTH, in 1846, says:—“In the hope of inciting other Germans ‘to go and do likewise,’ I will state the result of one of my vineyards this season. Sixteen years since I bought an unusually broken piece of ground on Boldface creek, four miles from the city. The soil is rich, but abounds in stone. I had a tenant on it four years, who was bound to plant a vineyard. At the end of four years nothing was done. I tried a second, and after three years, found no grapes. I then gave a contract to a German, (M. DUFERBER) who had a wife, daughter, and three stout boys. I gave him a hard bargain. I required him to trench and wall with stone, six acres for grapes, in three years, and nine acres in five years. He was also to plant out a peach orchard, and tend an apple orchard I had on the place. The wine and proceeds of the orchards were to be equally divided. I carefully avoided climbing the stony hill for three years, expecting the same result as formerly. When I visited the hill, at the end of three years, I found the six acres handsomely trenched and walled, and set with grapes. There are now nine acres in grapes. The ten-

ant complained this year, of the rot in his vineyard. I am in the habit of selling to the tenants, my share of the vintage, at a price that enables them to sell at a profit. I this season sold at 75 cts. per gallon at the press, for the Catawba, 62½ cts. for the Cape, and 50 cts. for the small quantity of Isabella made. He has paid me \$661 for my share of the wine, and for his share and the profit on my part, has realized the sum of \$1,392.50. The Catawba he sold at \$1.25 per gallon.

“The best crop for the extent of ground this season, was at the vineyard of Mr. RENTZ, about four miles from town. Two acres yielded 1300 gallons. This is as large a yield as I have known, taking two acres together. To select particular spots, I have raised at the rate of 1470 gallons to the acre. The grapes at the vineyard of Mr. RENTZ would have ripened better, had one-third of the bunches been cut off early in the season. Where the crop is very abundant, it requires a very favorable season to ripen the fruit well.

“Six hundred and fifty gallons to the acre, is a large yield, and the season must be favorable, or they will not ripen well. A large crop is often occasioned by leaving too much bearing wood. This should always be avoided; for even if the crop ripens thoroughly, too much of the sap is taken by the fruit, and too little left to produce good young wood for the next season’s crop.

“This season I have retained a part of my share of the wine, that I deemed the best, and have also bought a portion of the same quality from the tenants, at an advanced price. A part of it is fermented, with a view of bottling it for Champagne wine. The residue will undergo a full fermentation, and I shall bottle it when two years old, pure as when it came from the press; when it will be of the character of dry old Hock. Heretofore, all the wine made at my vineyards, has been sold to our German coffee houses, and drank in our city. That which I have retained this season, is intended to be sent abroad, in the hope that it may lead persons in other sections of the country, to turn their attention to the cultivation of the grape for wine.”

HENRY BRACHMANN has been selling these wines for some years past, and is careful to sell no wine as good, but a *pure* article. Mr. B. states, that they are steadily growing into public favor; and he intends building an arched cellar on purpose to keep them in large quantities, and of different vintages.

#### NUMBER OF ACRES IN CULTIVATION.

Some six months ago the Cincinnati Horticultural Society appointed a committee, of which Dr. MOSHER is chairman, to take a statistical account of the vineyards in this vicinity. The Report is not yet completed, but the following estimate of the aggregate has been furnished, and is supposed to be nearly accurate, viz: Number of acres in vineyard culture within a circle of twenty miles around Cincinnati, SEVEN HUNDRED AND FORTY-THREE; under charge of 264 pro-

prietors and tenants. Of this, Mr. LONGWORTH owns 122½ acres, cultivated by 27 tenants.

At the low estimate of \$200 per acre, for cost of planting, &c., this would amount to \$148,600—exclusive of the value of the land; and when in full bearing, produce at the most moderate estimate for a series of years, (of 200 gallons to the acre) 148,600 gallons of wine annually. But in good seasons much more.

THE NUMBER OF ACRES NOW IN BEARING is a little over 340. The average distance apart in the rows, is 3 by 6 feet, making 2400 plants to the acre.

The average product to the acre in 1848, was about 300 gallons, from near 280 acres then in bearing, and in 1849 (the worst year for rot that has yet been known,) about 100 gallons to the acre, from some 360 acres. New vineyards produced 200 to 250 gallons—but the old only 50 to 100; and the crops of a few were entirely destroyed by the rot.

Mr. A. LIGGETT of Ripley, Ohio, has obligingly furnished the statistics of the vineyards in that neighborhood. There are 73 acres planted, and 13 proprietors; about one-half the vines in bearing. The distance apart in the rows, 3 by 6 feet—the quantity of wine made in 1848 and 1849, about the same to the acre as in this vicinity, and the rot equally destructive.

#### ANALYSIS OF SOILS.

The following is from Dr. FLAGG's Report to the Cincinnati Horticultural Society in 1846, on the culture of the grape in Hamilton county:

“My friend, A. RANDALL, has kindly furnished me with the following analysis of soils, from the Agricultural Survey of Hamilton county, made by CHARLES WHITTLESEY, and A. RANDALL, Esqrs.

“The first analysis is made from specimens from the hills opposite Cincinnati, in Kentucky.

No. I. From wild land; timber, beech, poplar, &c.

#### COMPOSITION.

Water, not expelled at 180 deg. . . . .	2.00
Oxide of iron, . . . . .	0.30
Carbonate of lime, . . . . .	2.74
Vegetable matter, . . . . .	13.80
Earthy residue, . . . . .	81.16
	<hr/>
	100.00

No. II. From land worn down by twenty-five years' cropping.

#### COMPOSITION.

Oxide of iron, . . . . .	0.31
Carbonate of lime, . . . . .	3.91
Vegetable matter, . . . . .	3.10
Earthy residue, . . . . .	91.31
Water, . . . . .	1.37
	<hr/>
	100.00

No. III. From the hills in Mill Creek township, Hamilton county; wild land; timber, sugar maple, beech, walnut, &c.

COMPOSITION.	
Oxide of iron, . . . . .	2.00
Vegetable matter, . . . . .	10.00
Carbonate of lime, . . . . .	4.00
Sand and clay, . . . . .	79.00
Water of absorption and loss, . . . . .	5.00
Specific gravity, 2.29.	
	100.00

No. IV. Subsoil; color, light yellow.

COMPOSITION.	
Carbonate of lime, . . . . .	2.00
Vegetable matter, . . . . .	0.30
Oxide of iron, . . . . .	0.31
Sand and clay, . . . . .	94.17
Water of absorption and loss, . . . . .	2.40
Carbonate of magnesia, . . . . .	0.82
Specific gravity, 2.33	
	100.00

No. V. Analysis of gray limestone from some of the hills near Cincinnati.

*Limestone Rock.*—COMPOSITION.

Carbonate of lime, . . . . .	90.92
Peroxide of iron, . . . . .	3.14
Matter insoluble in mur. acid . . . . .	1.80
Carbonate of magnesia, . . . . .	1.11
Silex from solution, . . . . .	0.79
Water escaped by heat . . . . .	1.13
Loss, . . . . .	1.11
	100.00

From the above analysis, it appears that our soils contain, including sub-soils, from 3 to 4 per cent. of carbonate of lime, and the rocks from 80 to 90.

NOTE.—That the rot, or a similar disease of the grape, existed in the earliest ages, may be inferred from the following passage in Malachi iii. v. 11. “Neither shall the vine cast her fruit before the time, in the field.”

# A P P E N D I X .

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## MANUFACTURE OF WINE.

*To the Wine Committee of the Horticultural Society, Cincinnati :*

GENTLEMEN:—Each year's experience proves, that too little neatness and care are generally observed in gathering and selecting the fruit, in pressing out the juice, and having clean, pure casks, and a cool cellar. After racking in the spring, a cool cellar is indispensable, and few if any of our common cellars, are cool enough. They are too much affected by the outward air, and all jarring from the passage of wagons, or other causes, is injurious. The casks, after racking in the spring, should be always kept full and air-tight. We especially err in gathering our grapes too soon. We should never do this until they have reached their utmost maturity, unless they should be seized by the rot.

I formerly supposed, (being influenced by the opinion of foreign writers,) that every object could be obtained by the addition of good sugar. Experience convinces me of the contrary. Sugar will be converted into alcohol, and give strength to the wine. But it will not give the same richness of aroma and flavor as the fruit, so ripe as to require no sugar.

In some parts of Europe, to give richness to their wines, they gather their fruit and partially dry them before pressing, to carry off the watery particles from the fruit. This wine sells at a high price. Before gathering the fruit, its richness should be ascertained, as its color is no certain indication. This richness, when the maturity is the same, will vary in different varieties. To test its maturity, press out a tumbler full of must, and if you have no saccharometer, put in it a fresh laid hen's egg. If of proper maturity, the egg will then rise the size of a quarter of a dollar above the juice. If not rich, it will sink. The Catawba, should in favorable seasons, weigh from 90 to 97 degrees, by our saccharometers.

Many use fresh brandy pipes, to put their must or wines in. They are destructive to the aroma and flavor of the wine. Alcohol should never be added, unless the wine be too weak to keep, and when this is done, it should be distilled from the same kind of wine. If not, you injure its aroma and flavor. Spirit is never necessary, when the fruit is matured, unless it be in a hot climate. Then it seems to be indispensable, as the following hot season brings on the acetous fermentation. An intelligent gentleman of South Carolina, Mr. GUIGNARD, and another friend, both wrote to me to this effect. So much so does the value of the wine depend on the maturity of the fruit, and great neatness in manufacture, that in buying this winter from a person in the vicinity of Louisville, I paid him for his new wine, three times the same that I paid him for his wine made in the year 1848. When that was made, he acknowledged he was not aware of the great importance of having his fruit fully matured, and the great care necessary, in separating green, decayed, and rotten grapes, and neatness in manufacture. The only object in buying his wine of 1848, was to distil it into brandy. One great advantage that our native wine will have, is its being the pure juice of the grape. In Europe, total changes are wrought in the wines in the merchants' wine cellars. And we are so much the creatures of habit, that for many years we gave a preference to those wines of Madeira, that had the strong fœtid flavor which they derived from the old goat skins in which the must was carried from the mountains, on mules, to the cellars of the wine merchants at Funchal.

I yesterday had wines offered me for sale, when one of the persons made an observation, that revived recollections of a few years past. The wine of one of the persons was of fair quality, and he offered it to me at little more than half the price fixed by the other. Yet such was the quality of the 400 gallons of the latter person, that even a Jerseyman could not try to buy cheaper, and I promptly complied with his terms. Better Catawba wine I have never seen. I enquired if his grapes rotted the past season. He replied not, and that the rot in the vineyards of all his neighbors had been severe. I observed, yours must be a sandy soil, or more porous than your neighbors. He replied, a stiff sub-soil of clay, the same as his neighbors. That he could give but one cause for his success. That before the rot began, his time had been so much taken up by his farm, that he neglected to hoe his vineyard, and it was filled with grass and weeds. Finding his not to rot, whilst the well-hoed vineyards of his neighbors suffered severely by the rot, he left all standing and had a full crop, and left his grapes until fully ripe, and when he did gather them, did it from a fear of injury from frost, and thought the yield as large as it would have been had he gathered his grapes earlier. I recollect some years since, when my vineyard suffered severely from the rot, some of my lazy tenants, who left half their vineyards in grass and weeds, which escaped the rot, whilst the clean vineyards of their neighbors adjoining, and their own portion cleaned, suffered badly from the rot, attributed their escape to their idleness in not cleaning their vineyards. I was and am unwilling to believe this ;

“ But facts are chiels that winna ding,  
And dinna be disputed.”

I can scarcely believe this, for though I cannot fully believe the doctrine, that every act of an idle sinner is hateful in the eyes of his Creator, I am slow to believe that he holds out inducements to idleness. His long forbearance and mercy to idle sinners, compels me to believe He shows more mercy to them, and views their transgressions with more lenity, and makes more allowance for their bumps, natural propensities, education, and examples, than their more fortunate and perfect fellow mortals. But I would still call the attention of vine-dressers to the subject as worthy of note. I believe each year's experience confirms the opinion, that a sandy or porous soil suffers but little from the rot. A thorough draining, in our sub-soils of clay, may produce the same effect.

N. LONGWORTH.

*Cincinnati, February 9th, 1850.*

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## COMMUNICATION FROM N. LONGWORTH,

*Read October 21st, 1848, and ordered to be appended to the Report of the Committee on Fruits.*

TO THE CINCINNATI HORTICULTURAL SOCIETY.

GENTLEMEN: I objected to the Report of our Fruit Committee, in giving, as the cause of the rot in our Grapes, “ their location being in confined situations, not fully exposed to the air, and their proximity to orchards or woods.” My experience is the reverse, as regards a full exposure to the air, though I do not consider that the location as to air, either causes or prevents the rot.

Most of my vineyards at Tusculum, are on a high hill, and on its sides, fully exposed to the sun and air, and facing east, west, north, and south, with no tall trees in the vicinity. Yet in all these vineyards the rot has prevailed, and this season two-thirds of the crop was lost. The sub-soil is a stiff clay; and to this I chiefly attribute the rot. Among my vines near the foot of the hill, where the ground was more porous, there was less rot; and in the bottom, or near it, where the rain immediately sank deep in the earth, there was no rot. And this I have found to be the case at other vineyards. Where the sub-soil was a compact clay, the rot prevailed. Where the sub-soil was mixed with sand or gravel, or where it was porous, there was no rot.

I have for the past five years believed that the land in Kentucky, on the opposite side of the Ohio, would be preferable for the grape culture, to our own. The soil on that side of the river is in many situations sandy, and the rain passes freely through it. The consequence is, they supply our market with strawberries a week earlier than we can raise them on our side of the river; and most, if not all their vineyards are planted in soil of this character; and I have heard of no serious loss by the rot on the Kentucky side. On enquiry of our intelligent Germans, I find their experience coincides with mine. In their vineyards, the rot injured them the least where the ground was porous, or the water, from the declivity of the ground, passes off speedily; or if the sub-soil was a clay, and it was mixed with stone, which caused the water to sink speedily. One of my vineyards at Tusculum suffered but little from the rot, and this was on land where the sub-soil was a stiff damp clay, and near to the forest. The German who cultivates it is a perfect "swoab," a very ignorant man. He however was able to give the reason for his escape from the rot. He "prepared his ground, and planted his grapes just so as he did in Germany." His vineyard is on the top and sides of a high hill, descending both to the north and south. He trenched his ground, throwing up the earth from each side, making beds fifteen feet wide, with deep trenches on each side, and the trenches having a quick descent for water down the hill, north and south. On these ridges he planted three rows of grapes. The consequence was, that no water lay on the surface, or had time to saturate the clay beneath, but speedily passed into the trenches, and from them rapidly down the hill. On enquiry, I learnt the part of Germany he came from had a sub-soil of stiff clay, in consequence of which all their vineyards were graded in like manner. Nine-tenths of our "swoabs," in all their business and pursuits in life, must do it "just so as they did it in Germany," without any change for soil or climate; and the result is not always as favorable as it was with my tenant.

But I would not be understood as saying, that other causes may not also operate more or less in causing the rot. One reason for believing that other causes may operate is, that previous to the last six or eight years, we had much less of the rot, yet our soil was then the same, and our rains as frequent and heavy. But the rot should not discourage us. After losing two-thirds of their crops, my tenants, the past season, made upwards of nine thousand gallons of wine, and most vineyards escaped much better than mine, and many had no rot whatever.

In Germany, our vine-dressers assure us, the crop is not more certain than with us, though they are but little troubled with the rot. Their seasons are much shorter than ours, and their crops are often destroyed by their early frosts. My wine cooper informs me that before he left France, they had lost four crops in succession, and many of the poor, owning small vineyards, had cut them up and planted vegetables in their place. I am informed by intelligent Germans, that the same would be done in Germany, if the poor vine-dressers were allowed to do it. But the vine-dressers, both of Germany and Spain, have a greater evil to contend with. In a season when the yield is abundant, so low is the price of wine in Germany, that if you will take two empty casks to the press, you will be allowed to carry away one of them filled from the press. In Spain the evil is still greater. Mr. SAMUEL E. FOOTE, who was many years purchasing wine in Spain, informs me that he paid the cooper \$13 for wine pipes, and the vine-dresser \$5 for filling them.

Mr. REHFUSS recently imported from Germany the instruments used there for testing the saccharine quality of the must, and the strength of the wine when fully fermented. The result surprised me. Our must this season ranged from 80 to 101 degrees: I am informed by intelligent German vine-dressers and wine coopers, that in Germany it ranges from 70 to 90. Many are under the impression that the grape further south possesses more of the saccharine principle than it does with us. I believe this is never the case; and if it is, it is more than counterbalanced by their vintage coming on in the heat of summer, and the grape possessing a larger portion of the fermenting principle. Very

few, if any of our wine coopers now add sugar to the must; yet our wines, in tight casks and cool cellars, keep sound for years, without any addition. But the casks should be kept full, to guard against accident.

I corresponded for several years with Mr. McCALL, who cultivated the grape for wine, near Dublin, Georgia. He informed me that he was in the constant habit of adding from 2 to 2½ lbs. of sugar to the gallon of must, of the Schuylkill Muscadell, (Cape) and Catawba grape; and frequently found it insufficient to prevent his wine from running into the acetous fermentation. I know that Mr. HERBEMONT, of Columbia, South Carolina, was in the habit of adding as much sugar to his must; yet when his wine was offered for sale at public auction soon after his death, most of it was turned to vinegar, or undergoing the acetous fermentation.

The pure dry wines of Germany weigh from four to seven degrees in general. The wines of Madeira weigh from twenty to twenty-five. This is occasioned by the quantity of brandy added. In their hot climate, I believe it is necessary, to prevent the acetous fermentation. If not, they would not add any brandy, or not so large a quantity.

N. LONGWORTH.

#### NATIVE GRAPES.

*To the Editors of the Cincinnati Gazette:*

MESSRS. EDITORS: I requested last spring, in your paper, that persons having any new variety of the native grape, would do me the favor to forward me cuttings, that I might test their quality both for the table, and for wine.

The communication was extensively re-published in most parts of the Union, and the result was that twenty-four varieties were sent me in February and March last. I grafted them, and also planted cuttings. Most of the grafts are now in fruit, and from the wood and leaf, about one-fourth of them promise to be of superior quality. All of them are new in this vicinity, but two, the Olmstead, and Minor's Seedling. Both of these are Fox grapes. The fruit of the first, I have not seen; the second, is the best Fox grape that I have seen. The pulp is unusually soft, for that family, and the grape remarkably sweet, though it does not contain as much saccharine matter as some grapes less sweet to the taste. It is not a great bearer, though it bears uncommonly well for a grape of that class.

The Fox grape may never be valuable for a wine grape, except to mix with others, to give aroma and flavor. I received cuttings of several varieties of Fox grapes, and the stem and leaf of most of them are so strongly Fox, that they cannot be valuable. In my boyhood, I thought this grape the most delicious of all fruits, and found some that bore a fair crop. This vine is easily distinguished from all others. The leaf is like leather—thick, and of a white color on the under side, and downy, and the new wood covered with a hairy down, generally of a reddish cast. It is a great objection to it, that the fruit drops on the ground as soon as it is ripe. I rank the common class as about equal to the Black Scuppernong of North Carolina, (the Muscadine of the Mississippi,) from which, it appears, a superior wine is made in North Carolina, by putting *three pounds of sugar to the gallon*, and sold for \$4 per gallon, and from *two thousand to three thousand* gallons are raised on an acre. Further, a Horticulturist, there, tells us, he also makes wine from the green grape; the same person who raises so large a quantity, Mr. ALVES, of Kentucky, (formerly of North Carolina,) tells me they put from one-fourth to one-third of spirits to the gallon, and sell the wine from 75 cents to \$1 per gallon; a wide difference in price this. The North Carolina Horticulturist seems learned in the manufacture of Foreign Wines, as he tells us that one-third of Brandy is added to Port, Malmsey, and Madeira Wines. This will be news indeed to the European Wine Merchants.

The Black Scuppernong bears from one to four berries on a bunch, and would, in times of war, if lead be scarce, be as valuable, even when fully ripe, as the Fox grape, for bullets. The White Scuppernong, also has a very small bunch, and is

a better grape than the Black. But the skin is thick, and the pulp hard; it will never be valuable as a wine grape, unless to give to other must, aroma and flavor.

Our vineyards may have produced 800 and possibly 1000 gallons on an acre, but no vineyard has averaged 300 gallons for ten years. I believe ground, with a mixture of sand, or such as will freely let the rains sink, will be less subject to rot, and average double the crop produced, where the sub-soil is a stiff clay.

I shall be gratified to receive letters from all persons having new varieties of hardy grapes in their vicinity, describing the character of the wood and leaf, color, size, and quality of the fruit, &c. After importing Foreign grapes for thirty years, from all latitudes, I have never found one worthy of cultivation in open air, nor do we require them. We have native grapes of superior quality, both for the table and for wine; and by raising seedlings from our best natives, and from a cross between them and the best foreign, we can greatly improve them. We have neglected our native grapes.

Forty-five years since, I heard of a superior grape in the garden of Mr. ZANE, of Wheeling, found by him in a wild state on Wheeling Island. I sent for cuttings, and found the grape of no value. I heard of a person in Kentucky, who had it, and that it proved of good quality. I obtained cuttings, and it proved to be the Vevay, or Cape (Schuylkill Muscadell) grape. I am now satisfied that neither was the Zane grape. I, this spring, had cuttings sent me, from a vine got of Mr. ZANE, some thirty years since, and which has never got out of the neighborhood, and which I doubt not will prove of superior quality.

A native grape, of different aroma and flavor, and in all respects equal to the Catawba, would be worth millions of dollars to the nation. If my correspondents do not err, some of the kinds sent me are superior. The origin of the Catawba is in doubt. Major ADLUM first brought it into notice, having found it some twenty-five years since, in the garden of a German, near Washington city.

I received, recently, an interesting letter from Mr. ALVES, of Henderson, Kentucky. He was born in North Carolina, and says he heard of the Catawba grape, in the upper part of North Carolina, forty years ago, and that it was discovered near the Catawba river, from which it derived its name. A grape, precisely the same, is said to have been discovered in a wild state, a few years since, in Pennsylvania. I have one from the South West, of the same color, aroma, and flavor, but smaller, and the vine of slow growth, and a poor bearer; and one bearing much larger fruit, of precisely the same character, but inferior. I discovered it in the centre of my vineyards, and know not how it came there.

My oldest vine-dresser, Father AMMEN, has gone the way of all flesh, and I regret his end. He was a worthy old man. Some twelve years since, he lost his wife, and deeply regretted her loss. He assured me, with tears in his eyes, "she was just so good in the vineyard as one man, and he might just so well have lost his horse." He got a second wife, but she was of hasty temper, and gave the old man as good as he sent. Finally, she told him, if he would give her five dollars, she would leave him, and never see him more. "Give you five dollars!" said the old man: "I will do no such thing; but if you go and never come back, I will give you ten dollars." The money was paid, and the old man was relieved of that trouble; but one that he deemed greater came. I have heretofore said, that after being my tenant ten years, he was ruined by selling his share of the crop for eight hundred dollars. He cleared out; went to the north part of the State; bought land, and planted a vineyard. The location was too far north. His vines were killed, and he came back a poor man, and began a new vineyard on a farm of mine, adjoining his old one, on which his son-in-law has resided since he left it. This year his vineyard came into bearing, and the old man's heart rejoiced to think that he should again be able to sit under the shade of his favorite tree, and enliven his heart with wine of his own making. But, alas! the rot came, and blasted his prospects. He became dispirited; which the Cholera discovering, a few days since, seized his victim. He was taken to the house of his son-in-law, (for he lived alone, and I could not prevail on him to try a *Frau* for the third time,) when they urged him to take medicine, but he refused. He was told if he did not, in a few hours he must die. "What I care?" said the old man, "I take

none. What I want to live for? My grapes all rotten." A few hours, and he was no more. Peace to his ashes!

N. LONGWORTH.

*Cincinnati, July 16, 1849.*

#### MANUFACTURE OF NATIVE WINE.

*Gentlemen of the Cincinnati Horticultural Society.*

The season for our vintage is approaching, and the quality of the wine depends mainly on the period of gathering the grapes, and the care and neatness exercised in the manufacture, and the selection of the casks: skill has little to do with it. To make good butter, is apparently one of the most simple employments; yet not one dairy woman in ten makes butter of the first quality; whilst the best commands 25 cents per lb., the poorest has a dull sale at half price.

The first error is gathering the grapes too soon. This season has been a severe one on our grape crop, yet from the increased number of vineyards now in bearing, I believe the vintage will be greater this season than last. A late frost was very destructive in our vineyards, and the summer rot more so. From the first, vines often recover. One person informed me the frost killed all the young shoots, and his vine-dresser cleared out in despair, but that the dormant shoots put out with great vigor, and from one acre and one-third he expected to make 1,600 gallons of wine. If this prove true, the frost has to him been a blessing; for I have never yet known 1,000 gallons to be made from an acre.

If we want large crops, we must go to the fertile lands of North Carolina, where from their famous Scuppernong, they make from 2,000 to 3,000 gallons per acre. This is truly miraculous. I have known a bunch of our Catawba grape, to have 150 berries, and weigh 24 ozs. On the Scuppernong, the yield is from 2 to 8 berries. The price is in proportion. We add no sugar, and sell our wine from \$1 to \$1.25 per gallon. They add 3 lbs. of sugar to the gallon, and, strange to tell, make a Hock wine (which is a hard, dry wine,) and sell it for \$4 per gallon.

Injurious as we found the frost, the rot has been more destructive. But the experience of this year will confirm the opinion, that the rot is occasioned by a stiff sub-soil of clay, through which the water cannot pass freely. In our sandy soils, there has been but little rot; and in many, none. On our rich, deep-soiled bottoms, the rot has been less than on our side hills. The first error we commit, is gathering our grapes too soon, and before the saccharine principle is fully developed. Last season, some of the must of Mr. RHEFUSS, weighed 101, whilst that from some other vineyards, weighed from 65 to 80 only. The best, average about 95. In Germany, superintendants have this subject in charge, in the several districts, and they name the day on which the vintage is to commence. I presume this is to prevent ignorant vine-dressers from gathering their grapes too soon, as they are anxious to save a loss in quantity. This creates as great an evil, as it is intended to remedy. All vineyards do not mature their fruit at the same time; and often in the same neighborhood one vineyard will mature its fruit a week earlier than another. The ripest bunches only should be picked at the first vintage; and all rotten, defective, and green grapes, carefully picked out. The grapes should not be gathered till the dew is off. A second picking should be made some 8 or 10 days later, when with great care in picking out rotten, decayed, and green berries, wine equal to the first may be made. The rejected grapes from both pickings, will make a common wine, but will be improved by adding 8 or 10 ozs. of sugar to the gallon of must.

The press and casks should be clean. Even fresh Brandy and Madeira Wine casks should be carefully cleansed, to take out all the taste of those liquors. The casks placed in a cool place, where there is a circulation of fresh air, for fermentation; the bung being left out after the fermentation commences, till it abates, when the bung should be put in tight, and a spile hole made, and air given from

it, two or three times per day, and as soon as it can be done safely, all air excluded till the wine is clear, when it should be racked off. I would sooner pay 75 cents per gallon for must weighing 95, than 5 cents for one weighing 75.

In the manufacture of wine in Europe, in times past, the grapes were always mashed with the feet, before pressing, and in many places, the same practice still continues. We have been inclined to attribute this practice to their ignorance, and want of cleanliness. I believe, however, that, like many other old customs, we now treat with ridicule, the practice was important to the manufacture of good wine. My attention was first drawn to the subject by Mr. WM. HATCH, who stated, that in manufacturing wine from the Catawba grape, where pressed with little or no mashing, the wine contained but little of the muscadine aroma and flavor. On enquiring of my manufacturer of sparkling Catawba, I learn that the same opinion prevails in the wine countries of Europe, and in consequence the machine for mashing the grape is but little used in France. In the manufacture of Catawba wine, it is a great object fully to develope its muscadine flavor, as it is always retained in the wine after the most perfect fermentation. I would therefore recommend, even where they pass through a machine, that they be further mashed by pounding, using care not to crack the seed, or much bruise the stalks. By mashing, the pink color is also in part brought out. The muscadine flavor adds greatly to value of the wine, and where not fully developed, will lead to the conclusion that the wine is not pure. Where it exists in its full strength, it will always be evidence of the purity of the wine, as the aroma and flavor are peculiar, and cannot be successfully imitated. The machine in use for mashing grapes, does not separate the stems from the mashed berries. I would draw the attention of our ingenious mechanics, to induce them to add such an addition to the present machine.

Respectfully,

N. LONGWORTH.

Sept. 14, 1849.

#### APPARATUS FOR MASHING GRAPES.

*Latonia, February 28, 1850.*

R. BUCHANAN, Esq.

DEAR SIR:—In a letter addressed to the Horticultural Society of this City, by Mr. LONGWORTH, some time last Fall, he expressed the opinion that two essential requisites were yet needed, to complete the process of making wine from the Catawba grape; one of these was a method by which the grape could be separated from the stem, and the other was to impart the peculiar perfume or aroma of the fruit to the wine.

Before I had seen Mr. LONGWORTH'S letter, my father had resolved to adopt a method for accomplishing both of these objects, by a very simple process, which has been pursued by our family and others, in the vicinity of Tours, (in France,) for several generations past, in the manufacture of wine. The method is exceedingly simple, and is probably the only one that can be applied successfully to a large crop. Various attempts have been made in this vicinity to accomplish the desired object, but they have invariably failed; the only sure method it being supposed, was, to pick the fruit from the stems by hand: this tedious process could of course only be adopted with small quantities of grapes. My father's method is remarkable for its rapidity, and the perfect manner in which the grape is separated from the stem; the unusual excellence of our wine made by this process the last season, bearing ample testimony to the usefulness of the method.

There are many who think it not only a matter of indifference whether the fruit is pressed with the stem or not, but some venture to assume that the astringent principle contained in the stem, is essential to the preservation of the wine. From all these views, I dissent, and take the ground that *nothing but the perfectly ripe grape itself should be subjected to pressure*; and our Wine Manufacturers will, I predict, find this opinion correct after they have had sufficient time to test it.

The usefulness of the apparatus alluded to, depends more upon the method of using it, than upon the article itself,—it being mainly a manual process facilitated

by the use of a screen of wire, so arranged that sufficient space is allowed for the operator to extend his arms freely, and with the aid of hand pieces, the grapes are made to pass with great rapidity through the screen, entirely separated from the stem. It is difficult to describe the process on paper; in fact it can only be understood practically by witnessing the operation.

The crushing and attrition of the grape by this method are such as to bruise and rub the skin of the fruit, without breaking the seed, and thus impart the aroma to the wine.

In addition to the stemming process, we pass all our grapes through the "rollers," in a small wooden mill, before pressing.

Respectfully yours,

J. A. CORNEAU.

### FERMENTING THE GRAPE ON THE SKINS.

JOHN WILLIAMSON, a successful cultivator of the wine, who resides near New Richmond, O. has tried the experiment for the last two years, of letting his grapes ferment on the skins, slightly, after being mashed, and before pressing. He allows them to stand in large open hogsheads, for 24 to 30 hours, or, until they begin to ferment, and the grapes rise to the surface. They are then pressed. *Too much* fermentation in *this state* would be injurious, and give a bitter, astringent taste to the wine; but a *slight* fermentation adds to the color and aroma.

Mr. WILLIAMSON'S wine enjoys a high reputation where known, and readily commands \$1.25 per gallon, whenever it is offered for sale.

### VINEYARDS ABOUT CINCINNATI.

*To the Editors of the Cincinnati Gazette:*

GENTLEMEN:—I was yesterday at some of the vineyards on the Ohio, below the city, and among others at the vineyard of Mr. DUHME, who I understand resides in the city. The location is a good one, with a favorable soil, and is I believe the largest vineyard in the State. It requires his personal attention. The grapes ripen badly, and a large portion of them cannot ripen at all.

In some parts of Europe, where their summers are cool, they find it necessary to shorten the leading branches intended to produce the next year's crop, and thin out the leaves, and head in the short branches, and fully expose the fruit to the sun and air, to ensure its ripening. This method in our hot climate is often highly injurious to the plant, and destructive to the fruit. If the heading in of the leading shoots be done early in the season, the fruit buds of the following year are thrown out. As an experiment, I one year, by successive heading, had the fruit of four successive years on the plant at the same time, and the fall being favorable, the second crop ripened its fruit. Where the fruit branches are frequently topped, and the wood becomes ripe, the sap ceases to flow, and the fruit cannot ripen. This is the case at the vineyard of Mr. DUHME. In our hot climate no more lateral branches should be taken from the main shoots intended for next year's fruit, than to give them the necessary length. The fruit branches should be topped when in blossom, beyond the second eye from the last blossom, and after that allowed to grow without topping. In our climate, to ripen the fruit, a portion of shade is necessary, for where there is growing young wood, there is of course a full flow of sap to the fruit, without which it shrivels and drops off.

This day I visited a German settlement on the Ohio, commencing about 12 miles above the city, and extending about 4 miles. The hill commences close to the river, and rises gradually; the usual bottom land being on the opposite

side of the river. The soil is porous and well calculated in my opinion for the cultivation of the grape, and nearly the whole of the four miles is occupied by vineyards, and there are also some on the top of the hill. Two of the vineyards belong to Englishmen; the owners of all the others are Germans.

Most of the vineyards in this vicinity have suffered severely from the rot, and some vine-dressers, expecting in the early part of the season, to make from 2000 to 4000 gallons of wine, will not make 100. Yet their vineyards are on the sides and tops of the hills, fully exposed to the sun and air. But the sub-soil is a stiff clay, retentive of moisture. These localities will, I fear, be always subject to rot, and yet the vineyards will be found more profitable than any other crop. To persons having a porous soil, I would recommend the cultivation of the Herbemont grape. It is a fine grape, both for the table and for wine, and perfectly hardy. It makes wine of superior quality, similar to the Spanish Manzanilla, or Mansinella, as it is generally pronounced. This grape has a soft pulp, and resembles the best foreign table grapes. Lick Run, in our immediate vicinity, will make one of the most beautiful rural spots in the world. It will soon be a continuous line of vineyards. I wish some of our poets would visit it in May or June, and give it a more beautiful and appropriate name. They may rack their brains for months, and not find one worthy of the scene. It is different on Mount Adams, which is in a double sense in connection with the heavens—its height and proximity to the great Telescope of Professor Mitchel. The highest street is called Celestial street. Commanding as the view is, the name surely equals it.

#### N. LONGWORTH.

P. S. I have just returned from a visit to the vineyard of Mr. LANGDON, on the bottom of the Little Miami, eight miles above the city, in a sandy soil. That porous soil is not subject to the rot in grapes, is exemplified here. His misfortune is in fact, too large a crop of fruit, an unusual complaint this season. Yet he will have a poor vintage, arising from two causes, which prevent the fruit from ripening. The first and least cause is, too much fruit, from leaving too much bearing wood. There was more than the vine could give a supply of sap for, in a favorable season. The second and great cause is the same as at the vineyard of Mr. DUHME. The fruit has no shade, few leaves, and but little young wood on the fruit branches, to carry sap to the grapes to ripen them. The wood is life, and the circulation of the sap stopped. Not one-fourth of the grapes will ripen perfect, many of them shrivel and drop, and many of them scarcely change color. A favorable fall will aid them.

I observed in the vineyard of Mr. LANGDON, that the Catawba vine is much closer jointed than in our richer land, where there is a sub-soil of clay; and one of my German vine-dressers assured me this is always the case. This would indicate an increased crop, and the change probably depends on the richness of the soil. An important inquiry is, will the grape in a sandy soil yield an equal amount of sugar? I wish our vine-dressers to direct their attention to this subject. In some of our vineyards, they have both soils, and the question will be easily decided. The color of the Catawba grape is no certain evidence of its ripeness and richness. They are often of unusual dark color this season, yet the juice has one-eighth less sugar.

#### N. LONGWORTH.

#### VINEYARDS OF CLARK COUNTY, INDIANA.

The following letter, from Mr. GIBSON, will be found interesting:—

MR. R. BUCHANAN:

DEAR SIR:—Mr. A. GOODWIN, my father-in-law, yesterday placed in my hands a letter from you of January 28th, and requested me to reply to the questions therein propounded, which I take great pleasure in doing. The number of acres of grapes in cultivation in our county, (Clark) is somewhere be-

tween 150 and 200, and steadily on the increase. The Catawba is almost exclusively cultivated. Those who plant a few Isabellas, generally dig them up after a few years' trial. The objection to them is that they are much more liable to the rot than the Catawba.

The distances at which the vines are planted, vary in different vineyards from 3 by 6, to 4 by 8 feet. Mine is 8 by 8 feet; but I know of no others planted so widely apart. The cultivation adopted is simple and costs next to nothing. The land is deeply ploughed in the spring—holes dug with a spade and two or three slips planted in each hole—the ground is then planted in potatoes and pays for its culture—second year the same. Third year the vines are staked, ploughed and hoed once or twice. I have never known manure to be applied, and most of our cultivators are of opinion that the poorer the land, the better it is for the grape. When Mr. GOODWIN first commenced the culture of the grape, he planted perhaps an acre in a very rich river bottom, and cultivated them with a great deal of care. They made enormous growth of wood and a fine show of fruit, but it invariably rotted. I do not believe that he ever got two barrels of grapes from the vineyard. It was finally dug up and destroyed.

The grape is very subject to rot in some seasons, though hardly as much so, I think, as around Cincinnati; at least ours have escaped here, when yours were partially destroyed.

Vineyards planted in low valleys have generally been abandoned—the fruit is almost always killed by spring frosts. The average quantity of wine per acre, is about 200 gallons—this I mean for an average of different years. I have known them to rot so badly as not to produce 50 gallons. One thing I have never yet known—a vineyard to suffer much from the rot the fourth year—the crop is always good. The juice is generally sold from the press at from 70 to 80 cents per gallon, to vinters in Louisville, Cincinnati, and New Albany.

My attention was called a few years ago to a grape which has been cultivated here for the last forty years, and is, I think, a native. It is about the size, shape, and color of the Cape, but in my opinion superior to the Catawba as a table grape. It is a vigorous grower and entirely free from rot, but somewhat liable to crack when exposed to the sun.

*Charlestown, Ia., Feb. 26th, 1850.*

T. WARE GIBSON.

## CULTURE OF THE STRAWBERRY.

MR. BUCHANAN:—It occurs to me, that in connection with your publication in relation to the Grape Culture, and the Manufacture of Wine, engravings of the strawberry blossom, and a short description of their sexual and bearing character, will be highly beneficial, if properly understood. Every family having 30 feet square of ground, may have an ample supply of fruit. In our best species of strawberries, there are four distinct kinds as to their sexual character, and this character is never changed, if each kind were cultivated for a thousand years. The last persons to believe in this difference in the sexual character of the plant, are our botanists, for it is true, that the strawberry belongs to a class of plants, that possess both male and female organs, in the same blossom. But in their wild state, and in raising from seed, there are three kinds produced, entirely differing in their character. And in raising from seed, one may be found in many thousands of plants, distinct from the former three. Of the last description, I know of but two; the Eberlin seedling, and the Duke of Kent. One of the four is perfect in the male organs, but the female organs are so defective, that not one blossom in one thousand will bear fruit. Another is perfect in the female organs, but so defective in the male organs, that it is a rare occurrence for them to produce even a defective berry, without impregnation.

In raising from seed, a few plants will be produced, perfect in male organs, and more or less perfect in the female organs, and the result is, more or less perfect fruit, depending on the soil, season, and climate. The celebrated Keen's

Seedling, Wilmot's Superb, and Iowa, are of this character. But neither of them will average one-fifth of a crop of perfect fruit. This class of plants, and those entirely defective in the female organs, to a casual observer, present the same appearance. A large portion of the blossoms prove entirely barren. The pistillate plants, where not crowded too close, if there be those entirely male, or those that are hermaphrodite in their vicinity, have a perfect fruit to each blossom, unless killed by a late frost. These are the only kind to be depended on for a crop. I should impregnate them with a large fruited hermaphrodite, the Eberlin or Duke of Kent, I presume one having male organs, will fully impregnate 20 or more pistillates. If not closely watched, the former will soon root all the latter out, as they will in the early part of the season, make ten new plants, where the female makes one.

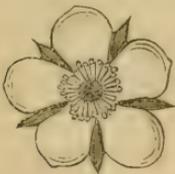
I would recommend to plant three beds of pistillates, then a single row of hermaphrodites, follow by six or eight beds of pistillates, and so continue to the end of the patch. I should cut off the runners in the single rows, and not allow them to increase. A staminate seedling may come up in a bed of pistillates, and root most of them out of the bed, before his presence is observed. This and the prolific character of the staminates, has led many of our first Horticulturists, and among them Mr. DOWNING, to believe that pistillate plants become staminate by running.

The fourth variety in the sexual character, bears all three of the blossoms; a portion perfect in the female organs, but entirely defective in the male. These are impregnated by both the other blossoms, and always bear perfect fruit. Others are hermaphrodites, perfect in the males, and a portion perfect in the female organs also. A part of these bear perfect berries—a part defective ones. More or less of the blossoms are entirely defective in the female organs, and bear no fruit. Neither of the two that I have seen of this character, bear large fruit. I deem it may be possible, from seed, to raise a plant perfect in both organs. Two of my tenants have raised many thousand plants, and among them three pistillates, that they think highly of. One of them has raised one, that he says has for two seasons, bore perfect fruit on all the blossoms, and the fruit as large as the Hovey's Seedling. I want faith. The present season will fully test the question. The blossoms seem perfect in both male and female organs.

*Cincinnati, Feb. 18th, 1850.*

N. LONGWORTH.

Staminate or Male Blossom.



Pistillate or Female Blossom.



NOTE.—At the request of the writer, a Committee from the Horticultural Society, composed of J. P. FOOTE, and Drs. WARDER, SHALER, and MOSHER, was appointed to examine this treatise, and report; a majority of the Committee met, and recommended its publication. The report will be made to the Society, but, not in time for insertion here.

It may be objected, that the directions, relative to the vineyard culture, are too much condensed; detail has been sacrificed to brevity, from a knowledge, that *short* descriptions are more likely to be read and remembered, than long ones.

R. BUCHANAN.











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