

SERICULTURE.—FEEDING THE WORMS.

BY LOUIS A. BERTRAND.

XI.

Now we will go back and attend to those little fellows that we took from the papers containing the eggs and placed upon other papers, and attend to their wants. Their first and almost only want is food. There is one thing, however, of almost as much importance to their healthy existence that they do not want, and that is, they do not want to be too crowded or thick together. For the first few days they require to be fed on the most tender leaves, which should be given to them directly from the tree, perfectly fresh and only a few at a time, removing them as often as the last given them are consumed. As the worms grow older and stronger, give them older and stronger leaves. But this rule should always be most faithfully adhered to: *Feed them but a few at a time, renewing them as often as those last given them are consumed.* If this rule be strictly followed, you will never see wilted or dried leaves, but always fresh ones, before the worms. There is but one exception to this rule of fresh leaves, and that occurs on the days of moulting, when, as before remarked, they should have none. There is no absolute invariable rule as to the exact age when the several moultings occur, for the reason that the life of the worm, from the day of hatching to the spinning of cocoons, depends in a great degree on the favorableness and uniformity of the weather, the frequency and regularity of feeding with fresh food and the quiet allowed them while moulting. The different varieties of worms also vary as to the period of their whole lives, as well as to the time between each moulting. As a general rule, however, under favorable circumstances the several moultings will occur as follows: The first moulting when about five days old; the 2d when nine days old; the third when fifteen days old; the fourth when twenty-two days old. Whenever the worm is about to commence moulting, he leaves off eating, attaches himself rigidly to the most handy thing he finds and stretches up his head as if in pain. The forepart of his body increases and the latter part decreases in size, and the whole body assumes a glossy appearance. Thus he continues to swell up about the head until the old skin bursts and slips back towards his tail. He then crawls out of the old skin a changed being, looking shriveled and gaunt and hungry, and at once begins to look for his food.

When care has been taken to keep the worms of the same age only, together, and they have been fed carefully and uniformly, all the worms on the same paper, or on the papers of the first day's hatching, will go through these several moultings at the same time. And so of the second and third day's hatching. Thus, when one worm wants to be quiet, and absolutely requires it, so does every other one on the same paper, and consequently all are gratified, no one crawling over or disturbing the other. Experience teaches that upon a proper separation of the several day's hatching depends, as much as upon any other thing, the success of a feeding and consequent success of a crop of silk.

Next to proper care in feeding often and on fresh food, and keeping the worms of the same age together, it is important, as intimated above, that they should be properly thinned and spread out over greater surface as they grow larger. They should have room, so as not to be required to lie one upon the other too much. This is necessary for convenience in getting at their food, and is very essential to the healthful growth and maturity of the worm. Besides the exercise of judgment, assisted by the appearance of the worms themselves, it may be well to be guided in thinning them out by the rules laid down in this chapter as to the space required for that number of worms, in connection with the amount of food they will require for consumption during each of the several ages.

Five hundred thousand worms for the first age should be allowed one hundred square feet of surface, and it is estimated that during this age, or the first five days of their existence, they will consume one hundred and twenty-five pounds of leaves. During the second age, or the next four days of their lives, they should occupy about two hundred square feet of surface, and will consume three hundred and seventy pounds of leaves. During the third age—from nine to fifteen days old—they should occupy about four hundred and fifty feet of surface, and will consume eleven hundred and fifty pounds of leaves. During the fourth age—from fifteen to twenty-two days old—they should occupy one thousand and one hundred feet of surface, and will consume three thousand four hundred and seventy-five pounds of leaves. During the fifth and last age—from twenty-two to thirty-two days old—the age of going to spinning—they should occupy two thousand five hundred square feet of surface and will consume nineteen thousand eight hundred and seventy-five pounds, or about two thousand pounds or one ton per day—making in all about twenty-five thousand pounds, or twelve and one-half tons of leaves.

It will be seen by the above statement that while the worms occupy but little space and eat but little during the first half

of their lives, they spread out rapidly and eat voraciously during the last half; consequently, while the work of feeding and attending to them is light during the first three ages, or first half of their existence, it becomes very considerable during the last two ages. These considerations have led, of late years, in most countries where to economize labor is desirable, to the adoption of what Mr. Louis Prevost styles the California mode of feeding. After the first two moultings, when the worms begin to move about pretty easily, instead of picking the leaves one by one from the tree and feeding them to the worms on a flat surface, you take your pruning shears and horse and wagon and go into your plantations, which must be cultivated in dwarf form. Beginning at one side of the field and clipping off the straight shoots from each tree as you follow the rows back and forth, throw them by the armful into the wagon till you have gathered the required quantity for one feeding, and drive to the cocoonery. Taking an armful of these branches, you lay down four in the form of a square on each paper containing worms. The worms gather along the branches and devour the leaves from them. The next feeding, you proceed in the same way, laying the branch each succeeding feeding on those before laid on; thus you build up a little square pen for each collection of worms all through your cocoonery. The worms work up from the stripped to the fresh branches, and in this way they are raised from the flat surface, where they are necessarily in contact with their own offal and filth, up into the air above it. This mode of feeding has many advantages, both in the manner of cultivating the mulberry tree in plantations as dwarfs, to which it has led, and in the feeding of the worms. First: because you can gather the food much easier and faster; second: you can produce much more to the acre than by the old orchard style of standard trees; and third: leaves thus grown, on trees pruned back are more vigorous and contain more of the resinous substance from which the silk vessels of the worm are filled. The advantages of this mode, as to feeding may be stated as follows:

First. The greater facility of handling a given quantity of food.

Second. The greater length of time the leaves thus adhering to the branches will remain fresh.

Third. It gives the worms a freer circulation of air, keeps them clean, and consequently more healthy and vigorous.

Many beginners believe that the above mode of feeding is a modern invention. To correct that false notion, I will state here that it has been practiced by Japanese breeders from time immemorial.

A NEW "DIXIE" VINICULTURAL CHAMPION.

SALT LAKE CITY.

Ed. News:—In your issue of the 17th inst. a new champion in behalf of our "Dixie" grape culturists has suddenly revealed himself. For fifteen years, the name of brother Hemenway has been honorably known to me as a popular nurseryman, but not at all as a vine-dresser. My friend Droubay, of Tooele valley, having entered the list with bro. Bonelli in behalf of the Burgundy brands, brother Hemenway has boldly drawn his mighty vinicultural sword to break in pieces the impudent French "velocipedes of the North."

Now I will quote the following awful and criminal statements of mine, reproduced by my new antagonist in his lengthy correspondence. "I must confess," he says, "that we were taken by surprise by the following, which appeared in brother Bertrand's letter, published in the News of July last:

"I hope and trust that bro. Bonelli, in Arizona, bro. Dodge, in St. George, and other Swiss grape culturists in our 'Dixie,' will succeed in making raisins equal to those of Malaga, and in manufacturing excellent wine, as alcoholic as sherry; but with the most scientific they will never produce anything approaching, in the least degree, any of the aforesaid Burgundy wines. Why? Simply because the climate of their locality is too warm." Again, my antagonist says, "in your paper of September 2nd, brother Bertrand says: It is a fact, indubitable, that Mr. Bonelli, Mr. W. E. Dodge, of St. George, and several other grape cultivators in our Dixie, will soon succeed in manufacturing a large quantity of wines, equal, and perhaps superior, to the best brands of Maderia, Malaga, Tenneriffe, Sherry, etc.; but I say again, nothing which can compare with the peerless aroma of the first class Burgundy ones. It is an utter impossibility." He also says: "I do affirm that the first class brands of Burgundy, mentioned in my first communication, are, by their unsurpassed aroma, the very best light wines in the world."

To annihilate these "sweeping" statements, bro. Hemenway refers the numerous readers of the News to the report of the committee appointed by the United States Commission at the Universal Exposition of Paris, in 1867, on the culture and products of the vine, which, says he, "is the most valuable publication on the vine I have ever seen printed, and comes from the highest authority in our nation." This report is now in my hands, and I boldly declare that it is an able but a very partial document. After quoting from it to elucidate the difference of national taste between the French jurors and American exhibitors of the Exposition, your correspondent triumphantly

exclaims: "From the above quotations, we find that the peerless aroma of the Burgundy wines is fully appreciated only by the French palate, trained to like that only which is negative;" also, "that the first class brands of Burgundy are, by their unsurpassed aroma, the very best light wines in France, but not in the world." Alas! famous Burgundy wines, idols of my heart, you are now fully dethroned by the powerful hand of bro. Hemenway!

The short description of "Clos Vougeot," the richest Burgundy vineyard, given by the American Committee, is too curious to be omitted:—"Here stand little starveling vines, very slender and very low; yet here is the celebrated 'Clos Vougeot,' and this is the hill, and these are the vines that yield a wine rivalling in excellence and value that of Medoc, and to the fortunate proprietor, the *cote d'or* is what it signifies, 'a hillside of gold.'" I wonder if my philosophical friend Droubay, who is well acquainted with the first-class Burgundy vineyards, can discover any feature of "Clos Vougeot" in the above description. I will remark here that the name of *cote d'or*, imperfectly given by the American Committee to the hill forming this celebrated vineyard, belongs to the whole department in which it is situated. The department of "Cote d'or," one of the most populous of Burgundy, contains Nuits, Pomard, Chabertin, Romanee, Morachet, Aloise, Savigny, Merget and other first-class vineyards not mentioned in the report.

Another remark. Why has brother Bonelli, who is so fond of scientific investigations and quotations, left unsolved my little problem on the Morachet vineyard? I seize the present opportunity to correct a very curious assertion made by himself in a former correspondence. "I have made," says he, "good wine in Switzerland with the white chasselas." I feel as inclined to endorse this statement as to believe that brother George D. Watt obtained the beautiful cocoons of his last crop in feeding the silkworms with cabbage leaves. Every European, ever so little familiar with the grape culture, knows that the white chasselas is an excellent table grape, but unfit for wine making.

After reading the American Commission's report, every impartial man can discover at once that a certain national rivalry arose between the French, German and American jurors or exhibitors of wines at the Exposition of Paris. The display of wines and fermented liquors of all kinds, from various parts of the world, was enormous. France had 600 exhibitors of wines, Prussia and Switzerland 201, the United States 33, not to mention hundreds of others. With this vast amount of work before the jury, it is not surprising that the wines of the United States, including those of California, did not receive more attention. Honorable mention was made of the sparkling wine sent by the Buena Vista Vinicultural Society of Sonoma (California). In order to remedy the disappointment of the United States wine exhibitors, the American Commission appointed a committee to specially examine American wines and make a report. This committee consisted of Mr. Flagg, of New York, Marshall P. Wilder, of Boston, and Dr. Jacob Thompson.

Now "Brother Jonathan" is a young promising boy, very smart, full of pride and ambition, anxious to beat the whole world in sericulture, in grape culture, in wine making, in everything. According to his military notions, General Grant is the most accomplished warrior, and the very best soldier the world has ever seen.

In reading carefully the report of the American Committee, I have been struck with the masterly style of its contents, but specially with the great partiality it displays against France. For instance, it is stated that the four millions of acres devoted to grape culture in that country yield annually an average of one billion two hundred millions of gallons. This is, indeed, a large production. Nevertheless only four vineyards are mentioned, namely "Chateau Margaux," "Chateau Lafite," "Chateau La Tour" in Medoc, and "Clos Vougeot" in Burgundy; but without saying a single word on the merit or demerit of these celebrated brands. How different its dealings towards famous German vineyard! All the most pompous words he English language can command are here accumulated to extol its praises to the sky. Read without laughing (if you can) the following republican phraseology:

"Now, Johannesberg is the most delicate of wine, as it is indeed superlative in every respect. By the kind invitation of the Princess Metternich, the Committee were allowed to taste specimens of the best of the castle cellar contained, including some that was twenty-one years old in the cask, and some from a cask that was *par excellence*, called the "Bride of the cellar," and the opinion formed was that the quality of Johannesberg is such that it cannot be described and can be communicated only to the organs of taste, nor can be understood or even imagined except by those who are so highly favored as to have a taste of it."

I will remark here that this marvellous wine, as well as the best French brands, are produced in cold countries. Now, what is the very best wine in the world? I boldly answer that which commands the highest price. The first class French wines are always bought by the monarchs, princes and bankers of Europe, before the vintage.

I here annex a short quotation, which speaks volumes on the value of certain French wines; "Yet Medoc grows wine that often sells for ten dollars a gallon, while

that of Beziers sometimes sells for the half of ten cents per gallon."

Medoc is a wine producing district nearly twice as large as Utah valley, and enjoying about the same climate. Its valuable products are exported to the ends of the earth. Beziers, being situated in the south and in a very rich soil, yields immense quantities of wine for brandy and alcohol.

L. A. BERTRAND.

(To be continued.)

We have been kindly favored, by Hon. Erastus Snow, with the perusal of two letters received by him; one from bro. Jacob Gates and the other from bro. Joseph W. Young, and as they contain several interesting items of news we take the liberty of publishing portions of them.

Brother Gates writes:

CITY OF ST. GEORGE,

February 4, 1869.

Persuant to appointment, the brethren visited the different settlements, and, on their return, made good and favorable reports of all the settlements. Brothers Herriman, Birch, Atwood, and myself, left St. George on Friday, the 22nd of January, for Toquer, where we arrived the same night. Saturday, 23rd, we organized, according to your instructions, a School of the Prophets, and was favored with a good turn out; a good spirit prevailed, and the brethren seemed very much pleased; we remained until Sunday; held one meeting, then left for Bellview, where we held a meeting in the evening; had a much larger congregation than we expected. Monday we rode to Kanarrah, where we held forth in the evening, a good spirit being enjoyed, thence to Cedar City, and had a very good time with bro. H. Lunt's ward. Wednesday we left for Harmony; but, the storm raged so hard, we turned in to bro. Birch's place, and went no farther that day. As the missionaries were to meet in St. George on Saturday we concluded to leave Harmony until another time; so on Thursday we returned as far as Harrisburg, where we held forth in the evening and reached this city on Friday, the 29th. Saturday, 30th, the School met. It was well attended; a good spirit continues with the School and with the Saints in general.

The Elders continue to visit the different Wards on Sunday evenings, and peace and good will prevail.

The 4th Ward School House is going on very well; the Court House is now moving [on fast, some five or six masons are at work upon it. I think I will have the front cut rock above the ground. I am in hopes to have the road running east from St. George Hall done so that you can ride in to town that way on your return.

The weather is fine; the spirit of Co-operation is wide awake, all that is wanting is money to carry it out. We have been talking of late about co-operative sheep herds, the idea takes well among the people.

Co-operation eventually must, and will be the rule of action in all our business affairs. The more we reflect upon the subject the more necessary it appears in order to ensure prosperity; in fact, there is scarcely any thing in nature which is or can be produced without a combined or co-operative system.

Brother Young writes:

ST. THOMAS, Feb. 5th, 1869.

Dear Brother.—I got your letter just as I was leaving St. Joseph to-day, in company with some seven brethren, en route for the Colorado, where we go to make a beginning on our claims at Junction City. I am to be joined at this place by some five others. We take down a boat and seine, and tools for making water ditches and building cabins. We shall also sow a little wheat on the bottom as an experiment.

We have been very busy the last two weeks on our new ditch at the narrows and have the water nearly out on to the plowing land in the cove.

This has been a heavy job, as we have had to grade down those bluffs to a level of 12 feet, and on a slope of 1 to 1½ thus almost making railroad grade; but the hardest part is done.

Many houses have gone up on the city plat since you were here, and we really look as though we were to have a city by and by.

We are getting up a petition to be forwarded to Captain Hooper for a mail route, from St. Joseph to Eagle Valley, via West Point, Long Valley, Clover Valley, Washington and Panacca. This route will be much needed and we hope to get it. I have also instructed Bro. Leavitt to get up a petition for a post office at West Point.

The brethren on the muddy feel well, and thus far we have had delightful weather.

JOS. W. YOUNG.