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XXXIX. Memoir upon the vineyards and wines of champagne in France: Written in answer to certain queries circulated by M. Chaptal

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At a Meeting of the Committee of the Society for Bettering the Condition of the Poor, held at Mr. Hatchard's, Piccadilly, on Friday the 3d of February, 1809,

THE LORD BISHOP OF DURHAM IN THE CHAIR,

Resolved,—That this meeting do unanimously approve of the suggestions offered in this Report, and will afford every countenance and assistance in promoting the experimental dispensary with an auxiliary dietetic, upon the plan which has been proposed.

Resolved,—That the said Report be forthwith printed, and generally circulated among the members of this society, in the expectation that their aid and countenance will be afforded in carrying the design into effect.

Resolved,—That one hundred copies of the said Report be sent to each of the dispensaries in the metropolis.

Resolved,—That one hundred copies of this Report be presented to Dr. Herdman, of Old Broad Street, London, who first suggested and elucidated the plan for improving dispensaries by a dietetic auxiliary, and the medical treatment of the diseased poor, in a printed letter addressed to the president, vice-presidents, and the other members of the committee of this society.

S. DUNELM, President.

XXXIX. *Memoir upon the Vineyards and Wines of Champagne in France: Written in answer to certain Queries circulated by M. CHAPTAL. By M. GERMON, of Epernay.*

[Concluded from p. 150.]

Is Grafting attended with Advantage?

FIFTY years ago they used to graft the vines on the mountains, and they generally obtained very fine vines with large fruit. This plan has now been abandoned, because it has been discovered that a grafted vine does not last so long as an ungrafted one, and the grafted vine is always more tender and delicate; besides, it produces a poorer kind of wine.

How many Dressings are given to the Vines previous to the Vintage?

The first dressing, which is called *becherie* (hoeing), is given immediately after the frosts have disappeared.

In general, as soon as the bud of the vine makes its appearance the women proceed to prune, and the men follow with the first dressing. This is a pernicious system; but the prejudices of the proprietors have not yet given way to the counsels of men of science.

The vines are pruned at the same time with the first hoeing; but this method is not practised in the Marne district, where they prune subsequently to the hoeing: it frequently, however, saves the prunings from the effects of the frost, and presents a resource to the proprietor if the vines have suffered from this accident.

Two other dressings are afterwards given, one in June and the other in August; but some proprietors, who are jealous of the good qualities of their vines, give them a third dressing in September.

What are the Processes employed in gathering and pressing the Produce of the Vintage?

In order to make red wine,—when the fruit is perfectly ripe, the black grapes only are carefully picked and gathered. The white grapes are laid aside, as well as those red ones which are not ripe; and these are afterwards made into wine of an inferior quality. The ripe red fruit, when thus separated, is put into panniers, or small wooden boxes called *barillets* or *cuvelets*, and conveyed on the backs of beasts of burden to the pressing-place: here they are pressed by small portions at a time, and the juice then put into a tub to ferment. In performing this operation some proprietors employ an utensil called a martyr, which is very useful. This is an oblong coffer, less than the diameter of the fermenting-tub, and about a foot or eighteen inches high. This coffer rests upon beams placed across the fermenting-tub, and its bottom and sides are pierced with holes in such a manner as to allow the expressed juice of the grapes to flow through into the tub.

How

How long is the Wine allowed to ferment ?

It would be difficult to fix any precise time for the duration of the fermentation ; this depends entirely upon the nature and maturity of the fruit, and upon the influence of the atmospheric air. Grapes gathered in the morning will more slowly go into fermentation than those which have been gathered after noon-day in fine weather :—mists, rains and hoar-frosts, all retard fermentation more or less.

In some years, three or four days are sufficient for producing a fermentation sufficient for preparing the fruit for the press :—in other years, ten, fifteen, and even twenty days are required.

By what Sign is it ascertained that the Fruit has attained a proper Degree of Fermentation ?

We cannot assign any certain symptoms that the wine has sufficiently fermented, as the period proper for placing the bruised fruit into the presses depends upon various causes ; upon the pleasure and experience of the proprietor, and upon the quality and colour which he wishes to give to his wine. Some place the fruit in the press at the strongest degree of fermentation, and others when it has slackened.

After the fermentation begins, in order to hasten it, they squeeze down the fruit in such a manner as to keep the must always uppermost : poles armed with spikes are used for this purpose ; or, what is better, some strong workmen descend into the vat and tread down the fruit : the fermentation thus becomes more equal and more general ; and when it has proceeded far enough, the must is carried to the press and the wine is made.

In ordinary years, when a lighted candle cannot be held over the tub without going out ; when the grapes and husks ascend to the top, notwithstanding their being repeatedly pressed down ; when the must undergoes a kind of ebullition ; and lastly, when the colouring particles are sufficiently decomposed to satisfy the wishes of the proprietor,—it would be dangerous to push the fermentation any further, as in

that case the wine might assume a dry and hard taste which even time could not correct, particularly in Champagne wines, which are prized on account of their pleasantness and lightness. The most consummate experience is sometimes unsuccessful in the above operations, and there has been no instrument yet invented which can be depended upon.

Is it advantageous to mix the extractive Liquor of the Tubs with that which is produced by pressing ?

This may be answered in the affirmative, with respect to the whole of Champagne;—and it is very advantageous for the following reasons :

1st, The wine made from the tub would be paler in colour and more delicate than that which is expressed from the husks.

2dly, The wine which came from the press only, would be harder, stronger, and redder, than the other ; so that from the same tub we should certainly have two different kinds of wine:—The mixing of them is therefore indicated by experience, and it is at all times necessary to have wines of an equal quality.

Is it advantageous to bruise the Stones of the Grapes ?

This operation depends upon the season, and upon the ripeness and nature of the fruit. When the fruit is small and the stone large, or when the fruit has not acquired all its maturity, the stones should be bruised.

When the fruit is full and well grown, when the season has been rather dry than humid, this operation may be omitted. It has been ascertained, however, that the strong and rough taste of the stones is necessary, as one of the constituent parts of wine.

To what Accidents are Red Wines liable when in the Casks ?

The accidents to which red wines are liable, are yellowness, muddiness, and a wormwood taste. These accidents happen when the wines are kept in badly-aired cellars, or
when

when the fruit has been damaged during the vintage season by frosts or continual rains.

How are the Red Wines managed ?

When the red wine which comes out of the tub, and that which has been expressed from the husks, are well mixed together in a vat procured for the purpose, the whole is poured into new puncheons previously rinsed with hot water; but they are not filled at once, because the wine always ferments for a few days longer:—as the fermentation ceases they are filled and bunged up, leaving a small spigot in the bung in order to allow the gas to pass out: when the fermentation has entirely ceased the puncheon is hermetically closed.

About the end of December, and if possible in dry weather, the wine is drawn off and freed from the greatest part of the lees.

About the middle of May, before the warm season commences, the wine is again drawn off clear. Before putting the puncheons into the cellar they are furnished with new hoops, where they are kept during the summer, or till they are sold, otherwise their contents would be spoiled.

What is the Method of clarifying Red Wines ?

This consists in drawing off the wine a third time. The whites of five or six fresh eggs are diluted in a chopin of water; and this quantity is sufficient for each piece or puncheon containing 240 bottles.

There are only 200 bottles in a puncheon of white wine.

The whites of eggs are well beaten up and then thrown into the puncheon, the contents of which are then briskly stirred up by a cleft stick.

This operation is performed previous to bottling the wine or sending it off to a market.

At what Age should Red Wines be bottled ?

In general, the red wines of *Haute Montagne* are bottled in the month of November succeeding the vintage, *i. e.* thirteen months afterwards. This season of the year is fixed

upon because all germination has ceased, and Nature is in a state of perfect repose ; thereby all fermentation is avoided ; and red wines may therefore be safely bottled from the first of October until the end of December : at any other season great inconveniences would arise ; for I know of nothing worse than red wine bottled in spring time ; it retains a slight degree of fermentation, and is very disagreeable to the taste.

There are some excellent and generous wines which can remain three or four years on their lees : of this description are the wines of St. Thierry.

How long will Red Wines keep in Bottles ?

The more body and spirit the wine has, the better is it preserved in bottles : the more tender, delicate, and light it is, the more difficultly is it kept.

This is the reason why the wines of Mailly, Chiny, Chenay, and Hermonville, keep worse than those of Verzenay, Bouzy, and Verzy ; and these last worse than those of St. Thierry. To conclude :—We may safely venture to say, that the best red wines of Haute Montagne will keep in good cellars for six, eight, ten, and twelve years.

What Degree of Temperature, according to Reaumur's Thermometer, ought the Cellars to have ?

The cellars in Champagne are from 25 to 40 feet in depth, particularly those which are dug in beds of chalk, and in which it is necessary to dig low, in order to obtain such a solidity of earth above, as to render an arch unnecessary. It results from experiments made by Messrs. Dubois, merchants at Rheims, that several good thermometers placed in various situations in their cellars, always marked five degrees below the temperature of the atmosphere. The variations between winter and summer were not half a degree, and could not be noted.

What is the Cost of an Acre of Vineyard ?

FIRST CLASS.

		Livres.
In Haute Montagne	-	2000
In Basse Montagne	-	1000
In St. Thierry	- -	900

SECOND

SECOND CLASS.

		Livres.
In Haute Montagne	-	900
In Basse Montagne	-	600
In St. Thierry	-	300

The convent lands, and what is called Clos St. Thierry, are not taken into this computation.

What is the annual Expense of Cultivating an Acre of Vineyard, including the Expense of Vintage and of Pruning?

			Livres.
To the vine-dresser	-	-	50
Props	-	-	18
Mending them, and carriage, &c.			40
Prunings and contributions			24
Four puncheons	-	-	40
Expense of vintage	-	-	28
			<hr/> 200 <hr/>

GENERAL OBSERVATIONS.

We have only mentioned the culture of vines in general, without detailing those of the high and low grounds separately. There are many vineyards, however, and particularly in St. Thierry, where the greater part of the vines is always raised to the height of about five feet, and supported by props of oak, six feet high, and an inch in diameter. This kind of vine can only answer in strong and vigorous ground.

The difference between the culture of the high and low vineyards, consists in the shaping, tying, and pruning

1st, Shaping consists in choosing from the sucker the best stalk, in preference to others which are cut off, and all the small collateral shoots are lopped off.

2dly, The tying is effected when the sap is most abundant, and the bud already developed: the above single stalk is bent like a hoop, and tied to the prop in two or three places.

3dly, Pruning consists in reinserting into the earth, and into small and long holes, every ten or fifteen years, the old sucker, upon which three or four stalks are left, which are also buried in the earth; and they send out an excellent plant

plant for the ensuing year. This operation is called *ravallément*, and is very different from the pruning practised in the department of the Marne.

An intelligent proprietor, who has a large extent of vineyard, should bury some vines (*ravaller*) every year, in order to have a sure and constant supply of plants for replanting.

The methods of treatment are in every respect the same with high and low plants.

XL. *On the Affinity existing between Oxides of Carbon and Iron.* By DAVID MUSSET, Esq.

IN my late communications to the Philosophical Magazine, a number of experiments were adduced to exhibit the universal diffusion of carbon, and to convey a tolerably correct idea in what proportions it enters into the composition of animal, mineral, and vegetable substances.

The affinity that exists mutually betwixt iron and carbon is every day manifested as the basis of one of our greatest national manufactures : in particular, in the various modifications of cast iron, steel, plumbago, &c.

Any inquiry that has for its object the investigation of those means, and of their peculiar modes of formation, to which we exclusively owe the existence of the most widely diffused and most useful metal that has hitherto been known in civilized society, commands attention, not only as a matter of curiosity, but as an object of the highest importance.

The natural mutual affinity of iron and carbon is such, that they may be reciprocally used as tests and agents of each others existence respectively ; and upon this principle, chiefly, the experiments which are to follow were performed.

The first object to be ascertained, in pursuing this investigation, was the nature of oxide of carbon, whether in the state of charcoal, coke, plumbago, &c. ; and wherein, and in what, it differed from the matter of carbon that existed naturally in the substances from which these were obtained.

If any two oxides of carbon were taken similarly compounded