WINE GROWING IN GREAT BRITAIN

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WINE GROWING IN GREAT BRITAIN

A paper by

MAJOR-GENERAL

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GCVO, CMG, CBE, MC

President, English Vineyards Association,

given to the Society on Wednesday 14th March 1973,

with the Right Hon. Reginald Maudling, MP, in the Chair

THE CHAIRMAN: We have a distinguished lecturer this evening who has made his mark in three quite separate careers. First as a soldier of great gallantry and distinction; secondly as Marshal of the Diplomatic Corps, who was regarded with great affection in virtually every country of the world, and thirdly through his unique position as the British viticulturist.

The following paper, which was illustrated, was then given.

INTRODUCTION

IT WAS only when I started to prepare this paper, that I discovered that in 1784 a Mr. Vispré presented to the Society of Arts 'A Plan for Cultivating Vineyards Adapted to this Climate'. 'Afterwards', he wrote, 'I left open my vineyards to the inspection of the curious'. I am very proud, therefore, nearly two centuries later, to address the same Society on the same subject. Incidentally, during the summer, we too open our vineyard 'to the inspection of the curious'.

HISTORY

Although I shall devote most of this talk to wine growing in Great Britain to-day, I feel that a brief reference to the past will not be out of place.

Over a long period, Rome limited the production of wine in her Provinces, in order to safeguard a trade which was of great value to her both commercially and as a source of taxes. But in AD 280 the Emperor Probus authorized Britain to cultivate the vine and to make wine. This was probably a part of his policy for rehabilitation in Gaul and Britain after the devastation caused by continuous barbarian raids.

Speaking generally, it may be said that viticulture in this country continued from that date, with varying degrees of intensity, until the end of the eighteenth century. In AD 597 it received a great boost with the arrival of Saint Augustine, for the demand for Communion Wine gave an admirable excuse to those very civilized monks to plant vineyards.

In 1152, the marriage of Henry II to Eleanor of Aquitaine brought a set-back to British viticulture, through the import of good wine at a relatively small cost from Bordeaux to Bristol. So it was that the British became greater drinkers of Claret than of Burgundy. Four centuries later there was a further set-back with the dissolution of the monasteries by Henry VIII.

Ever since that time there has been a prejudice against home-grown wine which cannot be justified, a prejudice with which successive enthusiasts have had to contend right up to the present day. For example,

John Rose, gardener to Charles II and an enthusiastic believer in English viticulture, felt impelled to write *The English Vineyard Vindicated*, in which he dedicated 'The Prince of Plants to the Prince of Planters, Your Majesty'. He ended the dedication with these words:

> So, if by Your Majesty's acceptance of the Essay, Gentlemen shall be encouraged to plant those sorts of vines which I have recommended and to cultivate them by my direction; that precious liquor may haply once again recover its just estimation, be the product of Your Majesty's Dominions and answer the ambition of
>
> May it please your Majesty,
> Your Majesty's
> most obedient subject and servant
> John Rose.

But despite the efforts of John Rose, more than a century later, in 1789, the prejudice still continued. The Hon. Charles Hamilton, who owned a vineyard in Surrey, wrote thus:

> It would be endless to mention how many good judges of wine were deceived by my wine, and thought it superior to any Champagne they ever drank; but, such is the prejudice of most people against anything of English growth, I generally found it most prudent not to declare where it grew till after they had passed their verdict upon it. The surest proof I can give of its excellence is that I have sold it to wine merchants for fifty guineas a hogshead; one wine merchant sold some of the best of it from 7*s* 6*d* – 10*s* 6*d* per bottle.

But again, despite the apparent success of Mr. Hamilton, there now followed another decline, which lasted until 1875, when the great-grandfather of the present Marquess of Bute planted a vineyard at Coch Castle near Cardiff. He also made wine there successfully until just before the First World War. Indeed, in 1881, Lord Bute sold some at 60*s* a dozen to a Cardiff wine merchant, some of which later fetched 115*s* a dozen at an auction.

HAMBLEDON VINEYARD

Turning to the present, I should like to make it clear that I cannot claim to be an expert; indeed, until we planted our vineyard at Hambledon in 1952, I knew little about horticulture. But I can speak with the authority of practical experience during the twenty years which have elapsed since that date.

I am often asked what induced me to plant it. I think that it all goes back to 1917. One day, in the cold wet Autumn of that year, the Division to which I belonged attacked alongside the French, and at the end of the day we found ourselves sharing a muddy slit trench with some French soldiers. These splendid 'Poilus', as they were called, seeing that we had no wine ration, took pity on us and shared with us their own, thereby greatly boosting our morale. Never has wine been more welcome, and on that day was consolidated my love, not only for France, but for her wine.

More than thirty years later, as we looked down on the sun-drenched slopes below our house, it occurred to my stepson, who knew of my love for France and wine, that the site would be ideal for the cultivation of the vine. A wild suggestion, so I thought at the time. Shortly afterwards, however, I was introduced to the writings of Edward Hyams and Barrington Brock on the possibility of viticulture in England. These are the two men who are the real pioneers of the revival of British viticulture, and it was they who inspired me to have a try. Shortly afterwards I set out with our gardener, Mr. Blackman, for the vineyards of Burgundy, where I already had contacts, to have a look round. Without the co-operation of Mr. Blackman, I could have achieved nothing. Now it so happened that our visit coincided with a banquet given by the Confrérie des Chevaliers du Tastevin at the former Cistercian Monastery of Clos-Vougeot. To this banquet we were both bidden, and I have often thought since that it was under the influence of Burgundian hospitality that I ordered 4000 vines, the number I calculated would be required for the 1½ acres which we had available.

Apart from the need for a vine variety that would ripen early, I had to decide whether or not to buy vines grafted on American rootstock. Most vines on the Continent are now grafted on American rootstock to enable them to resist phylloxera, that dread disease which came from America and destroyed so many vineyards on the Continent in the latter part of the nineteenth century. Having decided that I would plant grafted vines, I had to seek advice as to the best rootstock that would be resistant to our chalky Hampshire soil, and since the soil in Champagne is similar, I ordered vines grafted on the same rootstock that is used in that region. The actual vines which the French recommended were a hybrid called Seyve-Villard 5.276 grafted on 16149. But in order, as they put it, to 'ajouter un peu de noblesse', they also suggested that I plant a

Hambledon vineyard during the harvest

few of the noble Chardonnay and Pinot Noir. The latter of course is a black grape and – to the surprise of many people – largely used in the making of Champagne. Incidentally, my French friends strongly advised me against attempting to make a red wine in our northern climate and again I have followed their advice.

You may well imagine the excitement when the vines arrived. To suit our small tractor, we planted them in rows four feet apart, with three feet between the vines in each row. This worked out at about 3,500 vines to the acre.

Until the grapes had been planted I had given little serious thought to the endless problems involved in viticulture. In Burgundy it had all sounded so simple. But after a few years of practical experience and delving into the voluminous literature, French, German and English, which exists on the subject, I realized how right the author was who described the vine as the most exacting mistress in the world. Before she will yield one grape, three years of intensive work will be necessary. Moreover, apart from the initial cost of the vines, much equipment will be necessary. This includes stakes to support the vines, posts and wire, a tractor with attachments, rabbit wire to surround the vineyard, and harvesting equipment such as secateurs, trugs and containers.

Labour in the vineyard includes pruning, hoeing, tying the vines, manuring or fertilizing, disbudding, spraying against fungus and other diseases, trimming the foliage and so on. On the Continent, the use of weed-killer to replace hoeing is being tried out, and we also are experimenting on those lines.

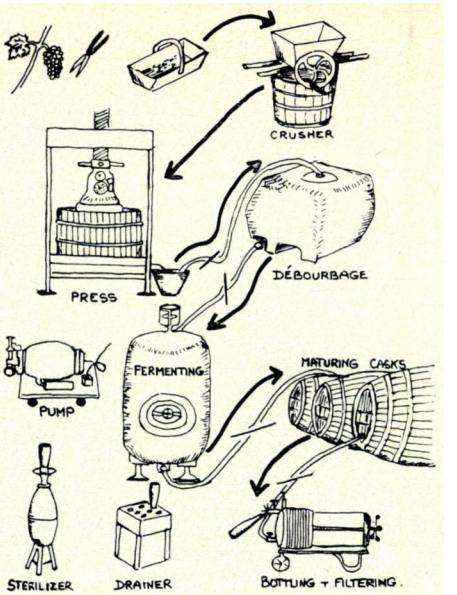
After the middle of October, there is little more that can be done except to await the harvest, and the fixing of the date is always difficult. By waiting another week, there is always the possibility that the sugar content may increase; but there is also the possibility that a violent hailstorm may ruin the whole crop. This period for us has brought an additional anxiety which I had not foreseen;

the ravages of the blackbird. This threat is not serious on the Continent. After unsuccessful trials with various forms of bird scarers, we now cover the whole vineyard with nylon or plastic netting a few weeks before the harvest. An expensive and laborious procedure, but one which brings refreshing peace of mind during the anxious weeks which precede the harvest. The state of mind of the vigneron during this period has been likened by one French writer to that of the anxious husband pacing the corridors of a maternity home. During these weeks, however, I enjoy myself with a nice little toy called a refractometer. By squeezing the juice of a grape on a lens and holding up a sort of telescopic device to the light I can test the sugar content and discover whether it is increasing or static.

Now a word about the harvest. Even if the weather is bad and the crop poor we generally succeed in making this occasion appropriately joyful. Indeed, long before it becomes wine the grape tends to radiate gaiety. We fill the house with young people and these are reinforced by helpers from the village. I can think of no more rewarding compensation, after months of anxiety and hard work, than the sight of the first drops of must pouring from the Press.

Once the grapes are safely gathered, we turn our attention from viticulture to vinification or the making of the wine. Here again I found that there was much more to it than I had imagined. Moreover, the equipment required was more expensive than I had foreseen. Fortunately, from the outset I have been able to count on the expert advice of Mr. Massel, a German wine chemist, now established in this country and probably as knowledgeable a vinificator as there is. Incidentally, it was Mr. Massel who several years ago warned me that we should never be able to make our vineyard viable unless we had at least 3 acres. As we were only $1\frac{1}{2}$ acres, we at once extended to a total of $4\frac{1}{2}$ acres, which I like to say is exactly the same size as one of the most famous vineyards in the world – that of Romanée Conti in Burgundy, which was already coveted by Madame de Pompadour in the eighteenth century. Incidentally, a bottle of Romanée Conti only four years old costs about £14 to-day.

Perhaps I can best indicate the equipment required for vinification by the diagram shown, which will also enable me to touch upon the phases of wine making, without



Equipment required for vinification

giving away all our trade secrets. The grapes reach the Press House in tubs from which they are poured into the Crusher, a kind of mangle which does the initial crushing. The pulp comprising stalks, skins and juice falls into the tub below the Crusher. The Crusher is then removed and the pulp poured into the Press. From the Press the juice, or must, as it is called before it has fermented and become wine, is conveyed to a vat where it will spend about twelve hours in order to allow the heaviest of the unwanted ingredients to settle at the bottom. The must is then conveyed to the fermentation vats. We have recently replaced wooden vats with fibre glass vats. From the fermenting vats, the wine – for the must has now become wine – is conveyed into wooden casks in which it will mature. Finally it is conveyed to the bottling and filtering plant. Among the additional equipment required may be mentioned a corking and capsuling machine, a bottle sterilizer and drainer and also a pump which is used for the various operations which have just been described.

Incidentally, we always bring our wine up to an alcoholic content of 11 per cent and in most years this will necessitate the addition of sugar, the process known as 'Chaptalisation', and much more common in the northern vineyards of Germany than is generally realized. We are generally supervising fermentation until after Christmas,

The Press at Hambledon

when we rack the wine off its lees and leave it to mature in cask until the Spring, when we bottle it. After three months in bottle it is drinkable and should be at its best after three years.

From our 4½ acres the average annual output had risen to about 8,000 bottles a year. In 1971, which was our record year, we produced 12,500 bottles. But 1972 was our first major disaster. However, as this was much overdue, we are not worrying unduly. Under 1,000 bottles will result from that harvest. Even so, the average over the last three years exceeds 7,000.

THE WINE

I am often asked what sort of wine we make. I have already said that we only make a white wine, and naturally, in this northern climate, it is a dry wine. I remember, before we had made any wine at all, asking a Burgundian friend of mine, very distinguished in the wine world, whether he thought we should ever be able to produce an acceptable wine. Witty and cautious was his reply. 'Men', he said 'are as fickle with wine as they are with women. Sometimes they love "une grande dame", but from time to time they prefer "une petite femme frivole". ' At the outset our wine may have been a little frivolous, but since then it has acquired more noble qualities.

With regard to flavour, comparisons are not very satisfactory. The first Frenchman to taste our wine compared it to a still Champagne or a 'Champagne nature'. This at least was a logical comparison, for we are on the same chalky soil as they are in Champagne. It has also been compared to a Mosel and to an Alsatian wine.

With regard to quality, it is difficult for me to pronounce on this. But I can say that at a recent tasting in Stuttgart, it was placed by a German judge in the 'Kabinett Wein' category. Incidentally, in a poor soil, particularly if of a stony nature which retains warmth, wine can be of a higher quality than that produced in richer soil and in a sunnier climate.

MARKETING

I am also often asked – not always too politely – 'where do you sell the stuff?'. Hitherto, I have been in the happy position

to reply, perhaps with some conceit, that we never have enough to satisfy demands. This has in large measure been due to the excellent and unsolicited press coverage we have always been fortunate enough to enjoy. Indeed, press, television, and radio have always been very kind to us and have done much to dispel unjustifiable prejudice.

The most satisfactory outlet is provided by the 12,000 visitors during August and September when we open our Vineyard 'for the inspection of the curious'. Apart from other considerations, this economizes on packing and freight. We have also built up a good clientèle among wine merchants and a number of restaurants. We have even exported to the United States, Japan, Germany and even to France, but at the moment we are not seriously considering the export market. Apart from other considerations, the formalities at the moment are too complicated. For example, the cases we recently sent to France were needed in a hurry, so that we had to send them by air. Our local customs and excise officer produced the necessary forms to complete, but when the cases reached Heathrow, the authorities there said that the forms were wrong. After some delay our own local officer proved to have been right and off went the wine. But the frustrations of bureaucracy had only just started. On arrival at Orly Airport, the wine seems to have aroused the suspicions of the French Douane, who could not believe that England produced wine. There was further delay, therefore, before the wine could be cleared.

May I now turn to the spread of wine growing throughout Britain. Largely through press publicity, there have been times when we have been flooded by letters asking for advice on planting a vineyard. Flattering though this has been, it has not been possible to deal with such requests individually. Moreover, I have been anxious not to lead people astray until really satisfied myself as to the viability of British Viticulture. But people have not been easily dissuaded. Indeed, so many vineyards have now been planted that in 1967 was formed the English Vineyards Association, which now has a membership of over 300. About 240 acres is the latest estimate of commercial vineyards in England.

VIABILITY

I now turn to the question of viability. Since the minimum viable area is 3 acres, I will try and indicate the expenses involved in establishing and running a vineyard of that size, together with the Press House, Winery and Cellar. Obviously the circumstances of every such project will vary, so that my figures can only be taken as a very rough guide. I shall assume that for one reason or another the owner is unable himself to work in the vineyard and that he will, therefore, be faced with a wage bill. I would again emphasize that for three years there will be no income, although a wage bill will already have been incurred.

To take the vineyard first; with rows 4 ft. apart and a distance of 3 ft. between vines in each row, about 10,000 vines will be required. Assuming that grafted vines are to be imported from the Continent, these will cost about 35 pence each, so that the total cost will be about £3,500. The equipment for the vineyard, to which reference has been made earlier, will cost in the region of £2,500. I have not included netting for protection against birds as I am hoping that some more economic method will be devised to deal with this problem.

With regard to the Press House, Winery and Cellar, I am assuming that suitable buildings exist for this purpose. The cost of the Press and other wine-making equipment will amount to approximately £6,000.

Finally there will be a three-year wage bill, based on £1,200 per year amounting to a total of £3,600.

To summarize, therefore, the total cost of establishing a vineyard will be about £15,200.

The annual expenditure on such a vineyard is shown below.

ANNUAL COST	
FERTILIZERS ETC	£300
PAID LABOUR	£2,500
FIXED FARM COSTS	
Rates	
Insurance	
Water	£350
Repairs etc	
CULTIVATION AND HARVEST	
Implement Repairs	
Fuel	
Bottles	
Labels	
Corks	£800
Capsules	
Cartons	
Electricity	
Sprays	

ADMINISTRATIVE AND FINANCE	
Customs and Excise	£1,500
Telephone and postage, Trade expenses, Bank charges	£500
DEPRECIATION	£300
Total	£6,250

With regard to labour, we have hitherto managed with one permanent employee who is now virtually foreman and manager combined and one pensioner on three days in the week. Seasonally, casual labour will also be required. The total wage bill should not exceed £2,500. Incidentally, much of the secretarial work is done by a lady typist and by my wife.

I hope that the figure I have just mentioned will not discourage the potential wine-grower. Obviously, both capital and annual expenditure could be reduced by the pooling of such resources as the tractor and wine-press, where two or more vineyards are in the same area. Indeed, experiments in co-operation are already under consideration by some members of the English Vineyards Association. If the project of commercial wine-growing in this country still seems frightening, I would recommend the planting of about a hundred vines, which should provide more than fifty bottles a year for home consumption, presumably free of Excise Duty, since you would not need a licence to sell.

EXCISE DUTIES

Although I do not wish unduly to exploit this platform in order to air grievances, I should be giving a wholly false picture of the position, if I did not devote a few moments to an explanation of the nature of our complaint against the existing tax structure. It is not so much the amount – 25p per bottle – of which we complain as the unbelievable fact that for purposes of excise duty we are placed in the same category as a product which in our opinion is falsely called 'British Wine'. This so-called 'British Wine' is in fact made from imported concentrate, which is often fortified and has a higher alcoholic content than our Genuine English Wine, made from home-grown grapes, will ever have.

For years we have pestered the Treasury on this account but without success and with seemingly little sympathy. I should, however, except our local Excise Officer, who has been as understanding and co-operative as possible under the circumstances. Hitherto the Treasury has excused its attitude on the grounds that owing to GATT (General Agreement on Tariffs and Trade) entered into by the British Government in the '40s at a time when there was no English wine made from home-grown grapes, there is a binding and irrevocable commitment which makes any alteration in tax structure impossible. We cannot accept this. The essence of our complaint is that there should be a separate category for genuine English wine with an appropriate excise duty.

The general attitude appears to be that there is little point in encouraging in northern regions the consumption of a beverage, which, it is generally assumed, cannot be produced there. This attitude, based on prejudice rather than on facts, is a source of considerable discouragement to English wine growers.

Hitherto, the attitude of the Ministry of Agriculture has hardly been more encouraging, although our local Horticultural Adviser has always been most helpful. For example, whereas a Government Grant is available for the purchase of poles and wire for hop growing, our recent request for a similar grant for posts and wire for vineyards was turned down on the grounds that there were other items with just a strong a claim for eligibility as posts and wire for vineyards – a type of work which would be unlikely to benefit more than 500 acres a year in a limited part of the country. Recently, however, there have been signs of a more sympathetic attitude on the part of this Ministry.

THE COMMON MARKET

In the face of such frustration, it was refreshing on New Year's Day to receive from the French Head of the Wine Division in the European Economic Community, who had recently visited our vineyard, a charming letter. In it he referred to our work as being 'the more worthy of consideration in that it had aroused in Great Britain an awareness of the importance of viticulture as much on economic as on human grounds'. It seems curious that it should have taken a Frenchman in Brussels to take us seriously. But, 'a prophet is not without honour, save in his own country'.

In what way the Common Market will affect wine growing in Great Britain is as yet uncertain. A meeting was organized a month ago by the Wine and Spirit Association of Great Britain to explain how the wine trade would be affected by our entry into the EEC. Although there is to be a 'harmonizing' period before definite decisions are reached, we at last have reason to hope that in future there will be two separate categories, one for wine made from fresh grapes grown in Great Britain and one for wine made from imported grape concentrate. Whether or not the internal excise duty will be reduced is doubtful. It seems probable, therefore, that it will still be difficult for us to compete as regards prices with wine imported from EEC countries. It is possible, however, that we shall be able to compete more effectively with wine imported from countries outside the EEC, such as Spain and Yugoslavia, since there is apparently to be a 'Reference Price' which may have the effect of making such wine more expensive than it is at the moment.

Incidentally, although the price of genuine English wine at the moment may seem high, it should be mentioned that most of it is from single vineyards and domaine bottled.

THE REWARDS

If I have highlighted the difficulties of wine growing in this country, it is because I have been reluctant to lead people astray through over-enthusiasm. But I must conclude on a more cheerful note, for, apart from financial considerations, the rewards are many. Having not spent my youth in the country, it has only been late in life that I have come to realize that life is incomplete without some link with the soil, and what better link than that Prince of Plants, the Vine? Despite some worrying moments, few things have given us greater pleasure than to gaze down upon our vineyard during the harvest.

But not only is the vine a link with the soil. It provides also a link with that indescribable world of wine. In the words of Georges Duhamel of the French Academy, 'Wine, even before it is drunk, is the true and respectable symbol of communion between highly civilized peoples'. Much nonsense can be talked by so-called wine snobs, but what splendid nonsense it can be! Now, with our own vineyard, I am able to join in a little less nonsensically than before. Moreover, in every wine-growing country in the world, we now have a footing, and the pleasure of visiting my beloved France has been doubled by the contacts we have established in her wine-growing regions.

At banquets in Burgundy, I have listened enthralled as wine after wine has been praised with superlative eloquence and wit. In the Bordelais, as a Compagnon du Bon Temps Médoc, on entering any cellar I am in theory entitled to a salute of twelve bangs of a mallet on a wine cask. Another happy link with the Bordelais is provided by a statue of St. Vincent, patron saint of wine-growers, which was presented to us by the famous vineyard of Haut Brion. This statue now occupies a place of honour in our Winery. In Champagne we have established a special and very friendly relationship with one of the best wine growers in the area, who sells his grapes to Pol Roger. He and his wife, who work as a team, have come over to help us, and only a few days ago they were with us again to help with our pruning. This unique link has proved of special value, in view of the similarity of soil and climate in Champagne to our own.

Such have been but a few of the rewarding compensations for our efforts.

CONCLUSION

I will now summarize the points I have tried to make. Despite persistent prejudice we have now gained sufficient experience to affirm not only that viticulture in Britain is practicable, but that the wine can be of high quality. Birds, rather than climate, are the main problem. We can also affirm that despite the unfair excise duty, viticulture can be viable with a minimum of three acres of vines. In seeking a more sympathetic attitude on the part of the Government, we would stress that in a good year one acre of vines can benefit the Exchequer to the extent of £750 in excise duties.

But the cultivation of the vine is a serious business. Voltaire said he knew of nothing really serious here below except the cultivation of the vine. If, therefore, it is decided to espouse the vine, it 'should not be taken in hand unadvisedly, lightly or wantonly'. For example, it would be unadvisable to plant a vineyard in the absence of a suitable site and soil, and of the two the site is the more important, for up to a point, the soil can be adjusted; moreover it is encouraging to remember that a poor soil, unsuitable for any other form of cultivation, may well suit

the vine. Speaking generally, the most suitable site is a south-easterly slope, clear of frost pockets, but preferably not more than 400 feet above sea level, for even Southern England is north of latitude 50, generally regarded as the northern limit for successful viticulture; and I am told that every hundred feet above sea level is the equivalent of going a hundred miles north.

Finally, in view of the specialized nature, both of viticulture and vinification, it would be inadvisable not to seek expert advice in both fields, and preferably from the Continent.

DISCUSSION

THE CHAIRMAN: You are growing, I think, three different grapes. At what stage are they mixed and to what extent do you maintain a balance between them?

THE LECTURER: We use a hybrid called Seyve-Villard 5.276, and two noble grapes, Chardonnay, the white grape, and Pinot Noir, the black grape. We blend them all together in the press, which I don't think is always done in France.

THE CHAIRMAN: So you get a standard blend all the way through?

THE LECTURER: Yes, but with the few black grapes we have we try and ensure that they are not all used in one pressing.

DR. ROLAND BRAMLEY: I wonder if the netting of the grapes would help prevent hail storms from breaking down the grape?

THE LECTURER: I think it does.

MR. S. D. W. OGG: Sir Guy has not dealt with the irrigation of soil. I gather vines don't like getting their feet wet, as it were. To what depth should we irrigate to make sure this doesn't happen?

THE LECTURER: We are lucky, because our soil is beautifully drained of itself, and the problem hasn't arisen. Our soil is also very stony, and I am told that is good. It stops a pad forming on the top of the earth, and stops the rain drifting away too much.

MR. OGG: I have a very well worked, sandy field with a lot of natural springs. I am intending to have it properly irrigated, I hope with some help from the government. But how deep do I have to go – three feet six inches?

THE LECTURER: I don't know. Perhaps Mr. Ward does?

MR. JACK WARD, BA (Chairman, English Vineyards Association): We have had experience of planting in what seemed a very unsuitable soil: heavy clay that wasn't drained at all. We found after losing a lot of vines that it was necessary to put some drainage in, and of course at that stage it was very difficult because the plants were already growing. However, we did our best and cut four open ditches, two feet to two feet six inches in depth, right across the one-acre vineyard. This made a tremendous difference because it carried a lot of the water away. Since then we have had a shallower furrow made, which also helped considerably. If you have got springs in a sandy soil, then make quite sure that you can locate the wettest parts of the field and get the water away from those parts, rather than making overall drainage.

MR. RONALD PHILPOTT (Vice-Chairman, Guild of Sommeliers): I gather that you chose the Chardonnay and Pinot Noir because of your chalky soil, similar to that in Champagne. What reasons did you have in choosing the other? Was there anything specific?

THE LECTURER: The French thought the Seyve-Villard hybrid would flourish in this climate. It is a fairly early ripener. Of course, the early ripening depends partly too on the rootstock. We use the same rootstock as in Champagne. I have now got to replace the whole of my first vineyard, which was planted twenty years ago, and I have to decide what I am going to use. Now we are in the Common Market, if we want our wine to qualify for what they call VDQS there may be certain hybrids we won't be allowed to use.

MR. ARTHUR BOURNE: Could you tell me what is the worst possible weather for vines? And has any work been done in this country to try some new hybrids: for instance, one from the USSR, which can stand quite a lot of frost?

THE LECTURER: What we fear in this climate is the uncertain seasons. We don't like an early frost. When we first planted our vineyard there was a hedge at the bottom, and one year the frost on its way down hill hit the hedge, bounced back and damaged quite a lot of the vines at the bottom. So we have removed the hedge. The Chairman of our Association, Mr. Ward, will tell you that many of our members are experimenting hard the whole time on new kinds of vines and rootstock.

MR. WARD: We have managed to persuade Wye College to start an experimental project on vines, and we have brought over seven or eight hundred vines from Germany, Switzerland and Austria for the purpose. The College are going to test out varieties suitable for growing in this

country. But it isn't possible for us to ascertain all the varieties which have been tried in this country, or even know what results have been obtained from them.

MR. D. V. S. BURROUGHS (Director, Wine & Spirit Education Trust): Is it the intention of the English Vineyards Association to have a set of rules applicable to this country whereby the wines from vineyards in specific regions may be classed as Quality Wines?

THE LECTURER: Our Chairman has been trying to formulate a policy on those lines. It is not easy to get agreement.

MR. WARD: The English Vineyards Association is going to try and send out as soon as possible a précis of the main regulations or points that will affect us in this country.

A MEMBER OF AUDIENCE: Sir Guy mentioned damage from rabbits and blackbirds. I wonder if he has any experience of grey squirrels, because they are increasing alarmingly in many parts of the country?

THE LECTURER: We haven't been bothered with the grey squirrel. The blackbird is the villain of the piece. The rabbit only really attacks the very young vines, and so it may not be necessary to put wire round the whole vineyard.

MR. RÉNÉ BASSETT: When you planted your cuttings, did the majority of them flourish? What percentage failed to take?

THE LECTURER: I don't even try grafting myself. The French tell me it is a highly technical process and even to-day there are experts who lose a very high percentage. So I bought my vines already grafted from France. I only lost about five per cent.

MR. GEORGE COCKBURN (John Harvey & Sons Ltd.): Have you thought of making either sparkling wine or eiswein?

THE LECTURER: I have not thought of eiswein. I had thought of sparkling wine but I am hesitant, mainly because I don't know what I am going to call it. We like the name Hambledon, and if I did make a sparkling wine I might want to buy grapes from some of our neighbours in bigger quantity, and then I should no longer be able to give it the appellation Hambledon.

MR. A. T. BRETT-JONES, FRICS: Which years have been best for the quality of the wines? Are some of them long-lived, or best drunk in two or three years? Also, where can we buy your wine in London?

THE LECTURER: We ought to have put some wine aside each year to see how long it lasted. Anton Massel originally told me that our wine really ought not to be drunk for three years, but as you know, a lot of people to-day like drinking these wines young. I have drunk it at seven years old and I know people who have drunk it at ten years old, and it is still good.

MR. ANTON MASSEL: These wines have considerable acidity; it is not detrimental to quality but helps to make good staying power. So these wines will last for ten years or even longer. They are also quite attractive when young. We took a number of old vintages of Sir Guy's wine, and the other day we tasted 1969: it was extremely nice. I have also a '67, which you might say is still young and fresh. Generally they reach their peak in three, four or five years.

A MEMBER OF AUDIENCE: Is there a restaurant in London which serves Hambledon wine?

THE LECTURER: There is a restaurant called Scott's in Mount Street which sells it, and Peter Dominic sells it retail.

A MEMBER OF THE AUDIENCE: Is there any risk of bringing phylloxera into this country if one brings in rooting cuttings? The advice seems to be conflicting.

THE LECTURER: A lot of people do not realize that phylloxera really came to France via England. You have touched on a delicate point which split the English Vineyards Association at one time. There were those who advocated grafted vines and those who said it was quite unnecessary. Speaking personally, I wouldn't think of using anything but grafted vines. I am playing for safety. Phylloxera has been known in this country and I don't think one can afford to run the risk.

THE CHAIRMAN: Very wise advice.

A MEMBER OF THE AUDIENCE: I was interested in Sir Guy's remark that his experience showed that he had not pruned hard enough and that his vines perhaps had suffered from this. Then he mentioned that the Pol Roger family helped him to do some pruning recently. I would also like to ask why he chose a German yeast when his vines are in essence essentially from ones grown in France. Did he ever try to make wine from natural yeast rather than the imported German yeast? I have for some years used a natural yeast without any difficulty.

THE LECTURER: I did not say we did not prune hard enough, but that we did not prune well enough. The pruning has got to be done properly, not leaving lots of straggling ends which use up the vine prematurely. I have never seen the vineyard looking as it does this year. As regards the German yeast, I have faith in Anton Massel, whose home was in Germany,

and I bought this yeast through him. Natural yeast I have not tried, as I am told there would be a risk that unsound wine might result.

MR. IAN WICKENDEN: Sir Guy said he was advised that making red wine was inadvisable in this country. Can he tell us why? Is it impossible to make?

THE LECTURER: Not impossible – some people have made it; but my French friends strongly recommend me not to try it. To make a good red wine you must have a sunnier climate. The Germans don't make much red wine.

MR. ANTON MASSEL: Colour pigment comes at a later stage of ripening, and if the grapes don't ripen to their full extent as they do in Bordeaux and in Burgundy then of course we get less colour.

MR. FELIX APPELBE: How long is the time between cutting the grape and bottling ready for selling?

THE LECTURER: What we harvest this year at the end of October we shall bottle in the spring, four or five months after, and then we recommend not drinking it until it has had at least three months in the bottle.

THE CHAIRMAN: Listening to Sir Guy's lecture and answers I thought the combination of knowledge and enthusiasm was enchanting. Obviously he enormously enjoys what he is doing in this field, and he has contributed enormously to our enjoyment this evening. Whether we shall try to plant for ourselves, I don't know. I think he was wise and cautious in advising us. But what he has done to promote this activity in our country has been outstandingly important. I should like to propose a very hearty vote of thanks to him.

The meeting concluded with the usual expressions of appreciation to the Lecturer and Chairman.

Journal of the Society of Arts.

No. 1,804. VOL. XXXV.

FRIDAY, JUNE 17, 1887.

All communications for the Society should be addressed to the Secretary, John-street, Adelphi, London, W.C.

NOTICES.

ANNUAL GENERAL MEETING.

The Council hereby give notice that the One Hundred and Thirty-third Annual General Meeting, for the purpose of receiving the Council's Report and the Treasurer's statement of receipts, payments, and expenditure during the past year, and also for the election of officers and new members, will be held, in accordance with the Bye-laws, on Wednesday, the 29th June, at 4 p.m.

(By order of the Council)

H. TRUEMAN WOOD,
Secretary.

Proceedings of the Society.

CONVERSAZIONE.

The Society's *Conversazione* was held at the South Kensington Museum (by permission of the Lords of the Committee of Council on Education), on Wednesday evening last, 15th June.

The Galleries containing the Raphael Cartoons, the Sheepshanks Collection, the William Smith Collection of Water Colour Drawings, the Dyce and Forster Pictures, and "The Chantrey Bequest," were open.

The Reception was held in the South Court by Captain Douglas Galton, C.B., D.C.L., F.R.S., Chairman, and the following Vice-Presidents and Members of the Council:—Mr. R. Brudenell Carter, F.R.C.S., Mr. Charles Cheston, Mr. Francis Cobb, Mr. T. R. Crampton, Sir Juland Danvers, K.C.S.I., Prof. Dewar, F.R.S., Colonel Donnelly, R.E., Mr. W. H. Preece, F.R.S., Sir Robert Rawlinson, C.B., and Mr. Owen Roberts.

Promenade concerts were given by the band of the Royal Artillery (Conductor, Cav. L. Zaverthal) in the North Court, and by the band of the Royal Horse Guards Blues (Conductor, Mr. Charles Godfrey) in the Court-yard of the Museum.

BAND OF THE ROYAL ARTILLERY

1.	March ..... "Prodana Nevesta"	Smetana.
2.	Overture ..... "Dichter und Bauer"	Suppè.
3.	Valse..... ... "Wiener Blut"...	Strauss.
4.	Selection..... "Il Trovatore"	Verdi.
5.	Pizzicato..... "Al Fresco"	L. Zavertal.
6.	Song....."For Ever and For Ever"	Tosti.
	(Cornet Solo.)	
7.	Selection....."Rigoletta".....	Verdi.
8.	Gavotte ..... "Mignon"	Thomas.
9.	Song ..... "Gute Nacht"	Küchen.
	(Cornet Solo.)	
10.	Selection....."Faust".....	Gounod.
11.	Pizzicato .... "Sylvia"	Delibès.
12.	Overture ..... "Masaniello".....	Auber.

God Save the Queen.

BAND OF H.M. HORSE GUARDS (BLUES).

1.	Overture..... "Don Giovanni" ...	Mozart.
2.	Valse..... "La Cavaliere"	P. Perrot
3.	Selection..... .. "Dorothy"	A. Cellier.
4.	Viennese Dance	C. Malemberg.
5.	Glee..... "The Chough and Crow"	Sir H. Bishop.
6.	Selection from Balfe's Opera ..... "The Bohemian Girl."	C. Godfrey.
7.	Valse..... "Nina"	Waldteufel.
8.	Piccolo Solo "Breakmorn in the Forest" Mr. Smith.	Bonnisseau.
9.	Selection (Comic Opera) "Glamour."	Hutchison.
10.	Scherzetto	Maude V. White
11.	Valse..... "Crême de la Crême"...	C. Godfrey.
12.	Selection....."Ruddigore".....	Sir A Sullivan.
13.	Galop . ..... "Berlin"	Michaelis.

A vocal and instrumental concert was given by scholars of the Royal College of Music, by permission of the Director, in the Lecture Theatre. The programme was as follows:—

PART I.

(9.15 p.m. to 10.15 p.m.)

Quartett in E flat..... Schumann.
Sostenuto assai, Allegro man non troppo, and Molto vivace.
Messrs. Barton, Sutcliffe, Kreuz, and Squire.

Songs { *a.* "The First Meeting" ..... Grieg. *b.* "My Mother bids me bind my hair" Haydn.
Miss Anna Russell.

Violin Solo ..... Barcarole and Scherzo ..... Spohr.
Mr. Sutcliffe.

'Cello Solo ..... { *a.* Romance..... ... Davidoff. *b.* Tarantelle ..... Popper.
Mr. Squire.

PART II.

(10.45 p.m. to 11.30 p.m.)

Piano Solo	"Ballade in A flat"	Chopin.
	Mr. Barton.	
Song	"Deh Vieni"	Mozart.
	Miss Anna Russell.	
Viola Solo	"La Nuit"	Vieuxtemps.
Quartett in E flat		Schumann.
	Andante cantabile and Vivace.	
	Messrs. Barton, Sutcliffe, Kreuz, and Squire.	

The number of visitors attending the *Conversazione* was 3,800.

Miscellaneous.

THE SOCIETY OF ARTS AND THE COLONIES.

The Society of Arts, from its first institution, has devoted very special attention to the advancement of the Colonies, and to the increase of their trade with the mother country. For a considerable period of its history the chief Colonies of this country were those in North America (now the United States).

NORTH AMERICA.

In the first scheme of the Society the Colonies are specially mentioned, and in the official observations on the effects of the rewards bestowed in the class of Colonies and Trade, it is remarked:—"The Society, influenced by the tenor and spirit of sundry Acts of Parliament, subsisting for more than a century past, and being of opinion that to encourage in the British Colonies the culture and produce of such commodities as we must otherwise import from foreign nations, would be more advantageous to the navigation and commerce of this kingdom than if the like things could be raised within the island of Great Britain, have liberally extended their premiums and bounties for sundry articles suited to the climates and circumstances of the North American provinces."

A few years before the Society of Arts was founded, Benjamin Franklin had issued "A Proposal for Promoting Useful Knowledge among the British Plantations in America," and in 1755 the Society elected him a corresponding member. Franklin, in acknowledging the compliment, expressed his wish to assist in the giving of "premiums for some improvements in Britain, as a grateful though small return for your most kind and generous intention of encouraging improvements in America."

As early as 1755, Dr. Gardener, of South Carolina, drew the attention of the Society to the want of machinery in the Colonies, and urged its introduction in these words:—"The land is entirely tilled by the hoe, and the rice planted by the hands of slaves, but the worst comes last, for after the rice is thrashed they beat it all in the hand in large wooden mortars to so clean it from the husk, which is a very hard and severe operation, as each slave is tasked at seven mortars for one day, and each mortar contains three pecks of rice."

Premiums were offered in 1755 for the plantation of mulberry trees in Georgia, with the view of providing food for silkworms. The same premiums were next offered for plantations in Carolina, and shortly afterwards premiums for the silk itself were substituted for those far the plantation of mulberry trees.. Connecticut and Pennsylvania were also included in the offer of these premiums.

After these attempts to encourage the production of silk, endeavours were made to produce wine in the American Colonies. In 1763, Mr. Charles Carter sent a dozen bottles of two kinds of wines from grapes which grew in vineyards of his own planting in Virginia. One of these samples was the product of vines brought from Europe, and the other of American wild vines. The gold medal was awarded by the Society to Mr. Carter, as the first who had made a spirited attempt towards the accomplishment of their views respecting wine in America. Two hundred pounds in 1768 were given to Mr. Edward Antill, for vines planted for making wine near Brunswick, N. America. The Earl of Stirling received a gold medal in 1769, for planting 2,100 sets for wine; and Mr. Christopher Sherb, fifty pounds in 1771, for planting and cultivating vines in South Carolina, and producing wine from them.

Besides these endeavours to assist the production of wine and silk in the American Colonies, considerable attention was given to the introduction of other commodities. Premiums were offered for for the production of potash—"For the greatest quantity of good merchantable potash, not less than twenty tons weight, that shall be produced in, and imported from, the Colonies of Nova Scotia, New Hampshire, Massachusetts Bay, Rhode Island, and Connecticut, considered as one entire district, into the port of London, one hundred pounds. For the next greatest quantity, not less than ten tons weight, fifty pounds." The offer was extended to the Colonies of New York, New Jersey, and Pennsylvania, considered as one district, and to the Colonies of Virginia, Maryland, North Carolina, and Georgia, considered as another district. These offers attracted considerable attention, but the large amounts required were not produced without difficulty, and in 1766 the Assembly of New England entered into communication with the Society as to the best means for improving the manufacture of potash in America. The cultivation of logwood, of olive trees, of isinglass, of opium, of indigo, and several other important substances was favoured by the Society. In 1766, application was made to the Society by several coopers to give assistance in promoting the importation of pipe staves from America in place of those brought from Germany. The committee which was appointed to consider this matter found that at least £100,000 was annually paid for staves imported from

Germany, and that Quebec oak made into staves would answer all the purposes of the German.

In 1783, an account was given of the amounts awarded in premiums, from which it appears that, up to that date, £2,785 13s. 8d. had been expended, and 14 gold medals awarded by the Society as rewards in the class of Colonies and Trade. Of this amount, £175 was spent for importing earth nuts, myrtle wax, sturgeon, and zebra wood; £50 for making indigo, iron, and saltpetre; £1,665 18s. 2d. for planting vines and mulberry trees, and producing silk and cotton; and £894 15s. 6d. for establishing manufactures of potash and pearl-ash. In this year, 1783, one hundred pounds was offered for the greatest quantity of merchantable nutmegs, not less than five pounds weight, being the growth of his Majesty's dominion in the West Indies, and nearly equal to those imported from the islands of the East Indies. The gold medal was offered to those who should bring into the port of London the greatest number of plants of one or both species of bread fruit tree in a growing state, and premiums were also offered for considerable quantities of oil obtained from cotton seed. In 1807, a silver medal was awarded to Mr. William Bond, of Canada, for his observations on the culture of hemp and other useful information relative to improvements in Canada, and the sum of twenty guineas was voted to Mr. Ezekiel Cleall for his machine for beating out hemp seeds and flax seeds, which was expected to be useful in Canada.

The silver medal, set in a broad gold border, was presented to Mr. Charles Frederick Grece, of Montreal, in 1809, for the culture and preparation of hemp in Lower Canada. The premiums, however, were offered for several years subsequent to this date for the cultivation of hemp in Upper and Lower Canada, in Nova Scotia, and New Brunswick. A gold medal was also offered to the master of a vessel who should bring to this country not less than one hundred tons of hemp, the produce of Upper Canada, or of one of the above-mentioned provinces. In 1816, Lieut.-Colonel Joseph Bouchette, Government Surveyor to the Commission for settling the boundaries between the British Colonies in North America and the United States, presented an extensive survey or map of Canada to the Society, for which he received the gold medal.

Mr. William Green, Secretary of the Literary and Historical Society of Quebec, communicated to that Society, in 1827, a paper on colouring materials produced in Canada, accompanied by a box of colours prepared from these materials. The paper and box were sent to the Society of Arts at the instance of the Earl of Dalhousie, Governor of Canada, and the Society awarded the gold Isis medal to Mr. Green for the pigments, which were pronounced by authorities to be good.

West Indies.

The West India Islands also came in for a large amount of the consideration of the Society. The production there of cochineal, of cinnamon, of the mango tree, and of several other important substances was encouraged. In 1773, a gold medal was presented to Mr. George Young, surgeon, in the island of St. Vincent, for superintending the formation of a botanic garden in the island. It is stated, as a note to the award, that "an extensive piece of ground, as various to aspects and soils, in the gift of the Governor, was granted for the purpose by General Melvill, who further entered into considerable expense for clearing, enclosing, and cultivating the same as a garden, from a public-spirited disposition to promote the views set forth in the advertisements of the Society."

The Society continued to take an interest in the Royal Botanic Garden at St. Vincent, and Dr. Alexander Anderson communicated a catalogue of plants in the gardens in on September 24, 1806, which is published in the *Transactions*. (Vol. 25, p. 191.) In 1828, the gold Ceres medal was given to the Rev. Lansdown Guilding, of St. Vincent, for an important paper on the insects infesting the sugar-cane in the West Indies, which is also printed in the *Transactions*. (Vol. 46, p. 143.)

The Society offered premiums for the finest samples of nutmegs or mace, not less than twenty pounds weight, grown in any part of his Majesty's dominions in the West Indies, or in any British plantation on the coast of Africa, or of the several islands adjacent thereto, or in the island of Singapore, and equal to those imported from the islands of the East Indies; and in 1830, the large gold medal was awarded to Mr. David Lockhart, botanical gardener to the Government of the Colony of Trinidad, for twenty pounds of nutmegs grown by him in the island.

Great interest was felt in England about 1820 in the spread of tea culture in our Colonies, and the Society of Arts took the matter up. A gold medal was offered to the person who should communicate, from information obtained in China, the best and most authentic account of the culture of the plant or plants, the leaves of which furnish the different kinds of tea, together with the method of gathering, drying, and otherwise preparing the leaves. The gold medal, or fifty guineas, was offered to the person who should grow and prepare the greatest quantity of China tea, of good quality, not being less than twenty pounds weight, in the island of Jamaica, or in any other British West Indian Colony, and should import the same into Great Britain. The same premium was offered for the Colonies of the Cape of Good Hope, the Mauritius, and New South Wales.

Africa.

In the early years of the Society's existence, information was received as to the production of cotton in Senegambia, and it was thought well to assist the importation of this cotton. Therefore, in 1767, the Society offered a gold medal for the greatest quantity of clean, merchantable cotton, the growth of any of his Majesty's settlements on the coast of

Africa, imported by private adventurers into any of the ports of Great Britain, not less than ten tons. A silver medal was also offered for a quantity not less than five tons.

Africa did not after that time meet with much attention from the Society until, in 1823, an attempt was made to foster the growth of the vine at the Cape. A gold medal was offered to the person who should import, in the years 1824, 1825, or 1826, the finest wine, not less than twenty gallons of good marketable quality, made from the produce of vineyards at the Cape of Good Hope, or the parts adjacent. It was announced that this premium was not offered for the sweet or Constantia wine, but to encourage the improvement of the vineyards more recently established. This premium was awarded to Mr. Francis Collison, of the Cape of Good Hope, for wine of superior quality, the growth of that Colony. Mr. Collison sent half a pipe of wine, and stated that about three hundred pipes of the same quality had been sent by him for sale in the London market. "The wine was examined at the Committee by dealers and other competent judges, and was considered by them to be far superior to the Cape wines in general. It is free from the unpleasant, earthy flavour by which such wines are usually characterised, and was considered to bear a near resemblance to that made at Teneriffe."

New South Wales.

In 1821, attention was first called to the wool-producing capabilities of New South Wales, and premiums were offered by the Society of Arts. These were responded to, and in 1824 the large gold medal was awarded to Mr. J. McArthur, of Sydney, for the importation of the greatest quantity of fine wool, the produce of his own flocks; and the large silver medal to Mr. Hannibal McArthur, for the importation of the next greatest quantity of fine wool. In this same year, the sum of thirty guineas was awarded to Mr. T. Kent, for preparing and importing from New South Wales extract of mimosa bark for the use of tanners. The thanks of the Society were also presented to Mr. R. W. Horton, M.P., Under-Secretary for the Colonies and Vice-President of the Society of Arts, for sundry articles from New South Wales which he had presented.

It has already been shown how the Society attempted to foster the production of wine in North America and the Cape of Good Hope, and attention must now be drawn to the attempt in the same direction in respect to New South Wales. The gold medal was offered to "the person who shall import, in the years 1824 and 1825, the finest wine, not less than twenty gallons, of good marketable quality, made from the produce of vineyards in New South Wales." This was announced in 1822, and in 1833, the large silver medal was presented to Mr. Gregory Blaxland for wine, the produce of his vineyard at Paramatta. "On examination by the Committee, it appeared to be a light but sound wine, with much of the odour and flavour of ordinary claret, or rather holding an intermediate place between that wine and the red wine of Nice. The general opinion seemed to be that although the present sample, from the inexpertness of the manufacture and the youth of the vine, is by no means of superior quality, yet it affords a reasonable ground of expectation that by care and time it may become a valuable article of export." From a memorial to Governor Maquarrie from Mr. Blaxland, in October, 1818, printed in the *Transactions* (vol. 41, p. 286), it appears that he was preparing his land for a vineyard in September, 1816. In 1828, the gold Ceres medal was presented to Mr. Blaxland for a pipe of wine, the produce of his vineyard in 1827. "On tasting the samples, it was the general opinion that both of them are decidedly better than the wine for which, 1823, Mr. Blaxland obtained the large silver medal of the Society, and that they were wholly free from the earthy flavour which unhappily characterises most of the Cape wines. The colour of the wine is a tawny red." The prize was still offered for wine from Australia in 1845. In 1830, the large gold medal was voted to Sir John Jamison, President of the Agricultural Society of New South Wales, for his method of extirpating the stumps of trees in order to clear the forest land for cultivation. The silver medal was awarded to Mr. James King, of Sydney, in 1834, for his discovery of a sand in New South Wales, eminently fitted for the manufacture of the finer kinds of glass.

India.

Equally with the Colonies, the plantations in the East Indies shared the attention of the Society of Arts, and special premiums were offered for the advantage of the British Settlements. Dr. William Roxburgh, Superintendent of the Botanic Garden at Calcutta, sent, in 1811, a sample of India-rubber from Bengal, and also a paper on the teak tree of the East Indies, then used for shipbuilding. He also communicated suggestions on the means of supplying food to the natives of India when the rice crop proves deficient. The thirty-third volume of the *Transactions* contains a portrait of Dr. Roxburgh, who died in 1815, and an account of his labours. Subsequently, Dr. Wallich, Superintendent of the Botanic Garden at Calcutta, communicated to the Society a full catalogue of Indian woods (*Transactions*, vol. 48. p. 439). In connection with the introduction of an india-rubber from Bengal, mention may be made of the first introduction of gutta percha from Singapore. Dr. Montgomerie sent a specimen to the Society in 1843, and in 1845 a gold medal was awarded to him for the introduction of this substance into England. In 1815, the gold Isis medal was awarded to Mr. Thomas Hoblyn, for preparing rice in the island of Ceylon by means of improved machinery Many other medals were given by the Society in order to promote the production of various commercial substances in the East Indies, and particular

attention was given to fibres, silk, and tea. In 1788, Sir Joseph Banks suggested to the Court of Directors of the East Indian Company the practicability of cultivating the tea plant in British India; but it was not until 1834 that the subject was submitted to his Council by Lord W. Bentinck, Governor-General. In 1835, information arrived in Calcutta that the tea plant was found indigenous in some districts in Upper Assam, and in 1838, the Chairman of the East India Company sent a sample of this wild tea to the Society, which was referred to the Committee of Colonies and Trade. Subsequently, the Society awarded the gold medal to Mr. C. A. Bruce, "for his meritorious services in discovering the indigenous tea tracts, and cultivating and preparing tea in Assam." It will be remembered by readers of the *Journal* that Mr. Berry White, in his paper on the "Indian Tea Industry," denies to Mr. Bruce the honour of being the first discoverer of the tea plant in Assam (see *ante* p. 735).

It is not necessary to follow this subject further here, as the work of the Society at a later date in connection with the Colonies and with India will be found in the pages of the *Journal* in the reports of the Indian and Foreign and Colonial Sections.

BRITISH ASSOCIATION.

The fifty-seventh annual meeting of this Association will be held at Manchester, and will commence on Wednesday, August 31, 1887. The first meeting of the General Committee will be held on Wednesday, August 31, at 1 p.m., for the election of the president and sectional officers, and the despatch of business usually brought before that body. The General Committee will meet again on Monday, September 5, at 3 p.m., for the purpose of appointing officers for 1888, and of deciding on the place of meeting in 1889. The concluding meeting of this committee will be held on Wednesday, September 7, at 1 p.m., when the report of the committee of recommendations will be received.

The first general meeting will be held on Wednesday, August 31, at 8 p.m. precisely, when Principal Sir William Dawson, C.M.G., M.A., LL.D., F.R.S., will resign the chair, and Sir H. E. Roscoe, LL.D., M.P., F.R.S., President-elect, will assume the presidency, and deliver an address. On Thursday evening, September 1, at 8 p.m, a soirée; on Friday evening, September 2, at 8.30 p.m., a discourse on "The Rate of Explosion in Gases," by Professor H. B. Dixon, M.A., F.R.S., F.C.S.; on Monday evening, September 5, at 8.30 p.m., a discourse on "Explorations in Central Africa," by Colonel Sir Francis de Winton, K.C.M.G., R.A.; on Tuesday evening, September 6, at 8 p.m., a soirée; on Wednesday, September 7, the concluding general meeting will be held at 2.30 p.m.

The following is a list of the sectional officers:—*A.*—Mathematical and Physical Science—President, Professor Sir R. S. Ball, M.A., LL.D., F.R.S., Astronomer Royal for Ireland; Secretaries, R. E. Baynes, M.A. (Recorder); R. T. Glazebrook, M.A., F.R.S.; Professor H. Lamb, M.A., F.R.S.; W. N. Shaw, M.A. *B.*—Chemical Science — President, Edward Schunck, Ph.D., F.R.S.; Secretaries, Professor P. Phillips Bedson, D.Sc. (Recorder); H. Forster Morley, M.A., D.Sc.; W. Thomson, F.R.S.E. *C.*—Geology — President, Henry Woodward, LL.D., F.R.S.; Secretaries, J. E. Marr, M.A.; J. J. H. Teall, M.A.; W. Topley (Recorder); W. W. Watts, B.A. *D.*—Biology—President, Professor A. Newton, M.A., F.R.S.; Secretaries, C. Bailey, F.L.S.; F. E. Beddard, M.A.; Walter Heape (Recorder); W. L. Sclater, B.A.; Professor H. Marshall Ward, M.A. *E.* — Geography — President, Major-General Sir Charles Warren, R.E., G.C.M.G., F.R.S.; Secretaries, Rev. L. C. Casartelli, M.A., Ph.D.; J. S. Keltie; H. J. Mackinder; E. G. Ravenstein (Recorder). *F.*—Economic Science and Statistics — President, Robert Giffen, LL.D.; Secretaries, Rev. W. Cunningham, B.D., D.Sc., (Recorder); F. Y. Edgeworth, M.A.; T. H. Elliot; Professor J. E. C. Munro, LL.D. *G.*—Mechanical Science—President, Professor Osborne Reynolds, M.A., LL.D., F.R.S.; Secretaries, C. F. Budenberg, B.Sc.; W. Bayley Marshall, E. Rigg, M.A. (Recorder). *H.*—Anthropology—President, Professor A. H. Sayce, M.A.; Secretaries, G. W. Bloxam, M.A. (Recorder); J. G. Garson, M.D.; A. M. Paterson, M.D.

Correspondence.

KOLA NUTS.

Before replying to the letter of Mr. Lascelles-Scott, there are one or two points to be noticed in reference to the letter from Mr. Thos. Christy, which appeared in your last *Journal*. That gentleman states that my valuation of 3d. to 4d. per pound for kola nuts was written to the best of my knowledge in regard to the fortnightly auction sales; such was not entirely the case, my valuation was based upon what I knew had been, and probably would again be realised for this article both in public and private sales; but even supposing that the price of 4d. per pound had only been obtained in the public drug sales, what further criterion of the market value of the article does Mr. Christy look for? With regard to that gentleman's statement that "kola nuts came to Liverpool, and are sold there," one would infer that a regular market was established there for this produce. The following report, from a well-known firm of brokers in that city, tends to show that the market there is even in a more precarious condition than

here :—"Your note to hand *re* kola nuts; none here, and there is no inquiry at present; they only come in small lots, and at very irregular times, no record has been left of imports; demand is very uncertain, and value has varied accordingly; when there has been no chance of selling, lots have, at different times, had to be thrown away, as they do not keep, soon becoming rotten." This statement is also confirmed by another Liverpool broker. These facts seem to me to entirely disprove what Mr. Christy says, viz., "that the demand for sound kola nuts is far beyond the supplies."

The letter of Mr. Lascelles-Scott does not throw any light upon the present market value of kola nuts. It is quite true that I asked Mr. Lascelles-Scott 8d. per pound for half a hundredweight of kola nuts, but in discussing the value of this article one does not expect retail quantities to be placed upon the same basis as market quantities, and I would here remind that gentleman that my original valuation was based upon the question. "Would an importer find a ready sale, and if so, at what price for a quantity of kola?"

HENRY R. ARNOLD.

16, Coleman-street, London, E.C.,
June 9th, 1887.

Mr. Christy's letter in the *Journal* for June 3 fully confirms the views expressed by me respecting kola nuts. There is no regular quotation for them; the demand is uncertain and spasmodic, and, therefore, the planters in the West Indies, tempted by Sir Augustus Adderley's recommendation to invest in the cultivation, are liable to find both their time and money thrown away. This is all I wished to say, and, so far, nothing has been gained by Mr. Christy, except indicating the source of the information contained in Sir Augustus Adderley's paper.

The merits of kola nuts, *per se*, I do not touch. They may have, or they may not have a future. At present it is purely conjectural. Under these circumstances was it wise to recommend without qualification a purely speculative cultivation to small growers in the West Indies, when plenty of others, with certain returns, were within their reach?

It may be not out of place also to point out, in reply to both Mr. Christy and Mr. Lascelles-Scott, that the idea of making chocolate from kola nuts was first suggested in my "Annual Report on the Public Gardens of Jamaica," in 1882. This was nearly two years before it was taken up by Mr. Christy.

Coffee in parchment, and also in cherry, has been exported on trial from the West Indies, but the prices offered by the merchants were too low to be remunerative. Hence the growers prefer to pulp and clean their coffee themselves, and so place it in the market at first hand. They are evidently the sole judges of what pays them best.

D. MORRIS.

9th June, 1887.

CAOUTCHOUC-YIELDING PLANTS.

The remarks which appeared in the issue of the *Journal* for June 3, on "The Useful Plants of Mauritius" are important to those who take an interest in the flora of Mauritius, and more especially to those who would like to see our Colonies producing those vegetable products which we are obliged to seek elsewhere.

I wish, however, to point out an important omission which deserves attention. Of course, in a botanic garden, it is impossible to find room for everything, and I would venture to say that our Colonial friends in this respect are too exclusive; a great deal is left outside for want of space, attractiveness, apparent absence of utility, and difficulty of adapting a "place" suitable for the *locale* of a botanical "ragamuffin." Instead of concentrating attention to making a garden neat and prim, and cultivating what, *a priori*, is known to do well, it would be better to turn some attention to the cultivation of those plants which are not indigenous, but from which important products are obtained. This need not interfere with the present arrangement of making a botanic garden pleasant to the eye and enjoyable as a promenade, &c.

A few years ago I met with a gentleman who had spent some time in this isiand. He informed me that on some elevated rocky parts, which were almost destitute of vegetation, a creeping plant grew in luxuriance, the juice of which contained a large quantity of caoutchouc. From his description, I concluded that this plant was probably a creeping or trailing *Apocyna*.

It seems to me that it is very desirable to clear this matter up, for if a caoutchouc-yielding plant can be so easily grown on such a spot, we have a very simple way of utilising land which is not likely to be productive as it is, and which is beyond the reach of any ordinary agricultural process of being reclaimed.

The *Mangifera indica* (see "Useful Plants of Mauritius") is also said to grow on this island. It would be interesting to know if this plant is botanically allied to the *Mangabiera* (*Hancornia speciosa*), which yields Pernambuco and Ceara rubber. The geographical and climatological conditions of Mauritius seem favourable for the cultivation of this plant, provided it is grown on land with an ordinary good subsoil. It stands long drought fairly well at Ceara.

We must bear in mind that West African rubber is principally obtained from varietie sof *Apocyna*, which are natives of Madagascar. Some varieties of this class of rubber are fairly good; this fact makes it more difficult to understand why an article of higher commercial importance cannot be produced generally.

I am surprised to find that some writers on botany say that the *Vincæ* and *Neria* do not produce lactescent juices, and hence are devoid of caoutchouc. Our common garden periwinkle contains it, and when I was in Demarara, a few years ago, I was

struck with the amount of caoutchouc contained in the *Oleander*.

It would be interesting to know whether any of our own herbaceous or subshrubby plants, which are known to contain caoutchouc, could be profitably cultivated in warmer latitudes.

There are instances of plants, which are herbaceous in this country, having arborescent representatives in warm climates. The *Euphorbiaceæ* is a familiar illustration, one species of which yields the Para rubber; our common representative is a weed called the "Caper Plant." I remember planting out a number of these seedlings some years ago at Mitcham, and was surprised at the amount of lactescent juice which the mature plant yielded. The juice contained caoutchouc in rather large quantity.

I prepared in 1861 a quantity of caoutchouc obtained from the flower stem of the common dandelion, and it was exhibited at Guy's Hospital *soirée*. I was led to extract this from the report of an analysis of the juice of this plant contained in Dr. Pereira's "Materia Medica."

The best way of preserving these specimens is to place the caoutchouc in ether containing a small quantity of alcohol. In this mixture caoutchouc remains white and unaltered for a long time; exposed to the air, even in well-stoppered bottles, it rapidly turns brown.

I may note here that the *Chicoraceæ*, although lactescent, are said by some writers not to contain caoutchouc; these remarks respecting taraxacum are in contradiction to this. The common sow-thistle also contains this principle, although in smaller quantity. The *Sapotaceæ*, although lactescent, do not yield caoutchouc, at least I have not met with a single case in proof of its being otherwise. The concrete juices of these plants are called in commerce "butters," and consist mainly of fatty or oleaginous principles. Galam butter is obtained from a plant belonging to this order, *Bassia Parkii* (being first mentioned by Mungo Park).

THOMAS T. P. BRUCE WARREN.

Notes on Books.

THE HEALTH OF NATIONS. A Review of the Work of Edwin Chadwick, with a Biographical Dissertation. By Benjamin Ward Richardson. London: Longmans, Green, & Co. 1887. Two vols., 8vo.

In dealing with the work of Mr. Chadwick, Dr. Richardson had before him what he calls an original library—"a library which the most industrious scholar could not, I think, read through with any hope of being master of it in less than two or three years. . . . The first instalment to this library dates, as near as I can learn, from the year 1828 . . . the latest instalments bear the date of the year 1885-6." With such a mass of material, Dr. Richardson found it impossible, in the space at his disposal, to give an exhaustive review of all the essays before him. He writes therefore—"What I undertake to do is to select for review, from the essays, such portions as contain the substance of the whole, so that the all-important teachings may be rendered apart from the masses of detail." In considering the work of Mr. Chadwick as a whole, the editor finds two ideals—unity and prevention, and in all the treatises the idea of unity is for the prevention of evil. The contents of the two volumes are thus arranged. The first volume is devoted to *Directive Science*, subdivided as (*a*) Political and Economical, and (*b*) Educational and Social. The second volume deals with *Preventative Science*, subdivided as (*a*) Prevention of Disease: Sanitation (*b*), Prevention of Pauperism: Poor-law Administration (*c*), Prevention of Crime: Police Administration. Prefixed to the first volume is a short biography of Mr. Chadwick.

EXERCISES IN WOOD-WORKING FOR HANDICRAFT CLASSES IN ELEMENTARY AND TECHNICAL SCHOOLS. By William Cawthorne Unwin, F.R.S London: Longmans, Green, and Co. 1887.

Professor Unwin, finding a want in the case of his own pupils for a series of drawings for their use, has here produced a selection of exercises for workers in wood. The pupils having a very limited time at their disposal, it was found necessary to make the exercises so simple as to involve only one or two difficulties at a time. The author explains the principle upon which he has worked in the following words:—"The drawings form a series of graduated exercises. They begin with small simple pieces of jointing, in which, as only a single pair of pieces are united, the labour and difficulty are reduced to a minimum. When a selection of these joints has been made, the pupil will understand how pieces of wood are united together, in what directions pieces so united resist separation, and what is the relative labour of making each kind of joint. The next series of exercises consist of simple frames of four joints; the difficulty here is a good deal greater, because each joint must not only be accurately formed, but must have the proper position in relation to the rest."

ESTETICA DEL CANTO E DELL' ARTE MELODRAMMATICA (Esthetics of the Art of Singing and of the Melodrama). By E. Delle Sedie. Livorno. 1885. Four vols.

This work consists of a series of lessons on the use of the voice, which the author hopes may be easily applied in schools of singing and melodramatic declamation. The first book deals with general notions of music, the second with physio-

logical notions on the voice, the third with studies of expression and modulated singing, and the fourth with the study of singing applied to words. The fifth lesson of the fourth book is on action on the stage, which is illustrated by a number of figures showing the various positions necessary for a proper dramatic expression. The book is printed in Italian, French, and English.

Obituary.

COLONEL CROLL.—Colonel Alexander Angus Croll, who died at Dunblane, N.B., on 7th inst., at the age of 76, had been a member of the Society of Arts since 1843. He was a native of Perth, and on removing to London, he became connected with the Great Central Gas Company, and other similar undertakings. He held the position of Chairman of the United Kingdom Electric Telegraph Company, and in 1871 he was publicly presented with a testimonial of plate, of the value of 1,000 guineas in recognition of his services. He originated and erected the pile of buildings in the City of London forming the Wool Exchange. Colonel Croll was a deputy-lieutenant and magistrate, and had served the office of Sheriff of London and Middlesex. He was honorary colonel of the 2nd Tower Hamlets Regiment of Engineer Volunteers. As a magistrate for several counties, Colonel Croll took much interest in questions relating to prison discipline, and he was the author of a pamphlet on productive prison labour. Colonel Croll was a member of the Council in the years 1873-75, and held the office of Examiner in Gas in the Technological Examinations of the Society.

General Notes.

IRON STATISTICS.—There were last year, according to the official returns of the Luxemburg Chamber of Commerce, in the Grand Duchy 60 iron mines in activity, producing, with 3,025 hands, 2,361,372 tons of oolitic ore similar to that of Cleveland. Of the 21 blast furnaces, 20 were in blast for 797 weeks, producing 400,644 tons of pig-iron with 1,732 hands. The number of foundries, including that of the new Dudelange Steel Works, is 7, which with 178 hands, turned out 2,585 tons of castings, of which, 2,141 consisted of columns, floor-plates, and parts of engines and machines. The two rolling mills at Luxemburg and Dudelange produced 28,154 tons of finished iron and steel, with 401 hands.

IMPERIAL INSTITUTE.—It is announced that the foundation stone of the Imperial Institute will be laid at South Kensington by Her Majesty the Queen on Monday, July 4th, at half-past twelve o'clock. Subscribers of five guineas and upwards to the Fund for the establishment and endowment of the Imperial Institute will be provided with two free tickets for seats for a lady and a gentleman. Application must be made for these tickets, either personally or by letter, on or before Wednesday, June 22nd, at the offices of the Imperial Institute, 1, Adam-street, Adelphi, London, W.C.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, JUNE 20...Asiatic, 22, Albemarle-street, W., 4 p.m.

Victoria Institute, 7, Adelphi-terrace, W.C., 8 p.m. Annual Meeting.

TUESDAY, JUNE 21...Zoological, 11, Hanover-square, W., 8½ p.m. 1. Dr. Günther, "Report on a Zoological Collection made by the Officers of H.M.S. *Flying Fish*, at Christmas Island, Indian Ocean." 2. Mr. F. E. Beddard, "On a Point in the Structure of *Myrmecobius*." 3. Professor F. Jeffrey Bell, "Studies in the Holothuridea.—VI. Description of new Species." 4. Mr. A. Smith-Woodward, "On the Fossil Teleostean Genus *Rhacolepis*."

WEDNESDAY, JUNE 22...Geological, Burlington-house, W., 8 p.m. Papers by Mr. O. A. Derby, Miss C. A. Raisin, Prof. T. M'K. Hughes, Mr. W. S. Gresley, Mr. J. W. Hulke, Mr. E. A. Walford, Mr. J. V. Elsden, Baron von Ettingshausen, Mr. T. T. Groom, and Mr. J. Spencer.

Royal Society of Literature, 21, Delahay-street, S.W., 1 p.m.

THURSDAY, JUNE 23...Anglo-Jewish Historical Exhibitions, Royal Albert hall, Kensington-gore, S.W., 8½ p.m. Rev. D. Gaster, "Jewish Sources of the Arthur Legend."

FRIDAY, JUNE 24...United Service Inst., Whitehall-yard, 3 p.m. Captain W. H. James, "Fire Discipline, and the Supply of Ammunition in the Field, as Provided for by Foreign Powers."

Quekett Microscopical Club, University College, W.C., 8 p.m.

New Shakspere, University College, W.C., 8 p.m. (Annual Meeting) Paper by Mr. Ernest Radford.

SATURDAY, JUNE 25...Physical, Science Schools, South Kensington, S.W., 3 p.m. 1. Professors W. E. Ayrton and J. Perry, "Note on Magnetic Resistance." 2. Messrs. W. Stroud and J. Wertheimer, "Sounding Coils." 3. Mr. E. C. Rimington, "Comparing Capacities." 4. Professor Herbert Tomlinson, "The Effects of Change of Temperature in Twisting or Untwisting Wires which have Suffered Permanent Torsion." 5. Professors W. E. Ayrton and J. Perry, "Permanent Magnet Ammeters and Voltmeters, with Invariable Sensibility."

Botanic, Inner Circle, Regent's-park, N.W., 3¾ p.m.