

HORTICULTURE,

PRINCIPALLY WITH
IRRIGATION.

ADDRESS

DELIVERED BY

MR. J. WEST,

VICTORIAN HORTICULTURAL
LECTURER.

UNDER THE AUSPICES OF THE AGRICUL-
TURAL BUREAU AND CHAMBER OF
MANUFACTURES.

At the Eastern Annexe, Jubilee International
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CHAIRMAN—HON. W. COPLEY, M.L.C.,
COMMISSIONER OF CROWN LANDS AND IMMIGRATION.

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HORTICULTURE.

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In introducing Mr. West, the CHAIRMAN spoke of the spirit of federation that had been manifested by the Victorian Government in allowing Mr. West to come to South Australia to lecture and give the colonists the benefit of much of his extensive experience as regards irrigation and horticulture. (Applause) Our own people only required further instruction in the best methods of horticulture to enable them to produce as good fruit as Tasmania or any other country, and to place the produce in the world's markets. It was necessary to look to the larger markets of Europe and elsewhere for the disposal of our surplus fruit at a profit. (Applause.)

Introductory.

MR. WEST, who on rising was greeted with loud applause, said—

Mr. Chairman, Ladies and Gentlemen—I am pleased to be here to-night before such a large and intelligent gathering, but I am not sure, in speaking to you, how far I shall be able to interest you, because I have not a full knowledge of your local conditions, and I am not sure how far the points I wish to bring forward are applicable to those conditions. There is, however, one point on which we meet on common ground. We are common citizens of one great country, which, like a young giant, is arousing to a sense of her great possibilities, and any subject or question which may further the development of these great possibilities has a right to claim the attention and sympathy of all who call themselves citizens of this young country. (Applause.) Upon that ground I take my stand to—

night, and if my remarks upon the questions about which I wish to speak arouse thought in even a few of my hearers, I shall have a right to claim that neither your time nor mine shall have been misspent this evening. (Applause.) And now to begin my subject.

My avocation has been more in connection with irrigation than fruit culture. The latter subject has had to play a minor part in my investigations, but at the same time in my travels and experiences I have acquired a considerable knowledge of fruit culture, and could not help doing so, because it has assumed such large proportions in California and other States of America which I have visited. My usual practice is to give the subject matter of the lecture as clearly and briefly as I can, and at the close thereof invite questions upon any points I may have missed, and afterwards by means of the limelight show my audience interesting views taken from the irrigation settlements in California. (Applause.) I am surprised that this means of illustration is not more often used by lecturers; and in this connection I may as well relate a pleasing incident in respect to my visit to South Australia. I did not happen to have a lantern which I considered sufficiently large to operate in a large hall, and when I received the invitation to lecture in this colony I was, of course, eager to accept of it—because it is a pleasure for citizens of Victoria to pay these intercolonial courtesies—and I went to a prominent citizen in South Melbourne, Mr. Gunn, who is an amateur operator of lantern views, and who has one of the finest instruments in Melbourne. Nosooner had I told him the object of my visit to your colony than he readily volunteered to accompany me, and assist me in my lectures. “Yes,” he said, “I shall be glad to go to South Australia without fee or reward.” Mr. Gunn is here to-night, and by-and-bye you shall have an opportunity of judging of his work. (Applause.) My lecture relates to

The Development of Irrigation, and Kindred Industries of Intense Culture

which depend so largely upon irrigation for their success in Western America, whither I was sent by the Victorian Government last year to gain information on these subjects. Irrigation has now assumed very large proportions throughout the United States. Originally started in a few States in a small way, it has grown step by step until it is now one of the great

national questions which agitate pretty well the whole of the American Dominion. Such importance indeed has it assumed that the United States Government appointed a Royal Commission to investigate the question of irrigation, and voted the large sum of £75,000 for the purpose of having a preliminary survey of the irrigable country of Western America. The investigations of that Commission and the survey have shown that at least two-fifths of the area of the United States has to be classed as arid country, dependent upon irrigation for anything like successful culture. Three of the States at least seem to have gone farther and faster than the others in the matter of the development of irrigation works, namely, California, Colorado, and Utah, and it is of the practice and growth of irrigation in these States that I wish to speak to-night. California is a long strip of country running along the Pacific coast and embracing 156,000 square miles. California has natural conditions very similar to some of the Australian colonies. Like the colonies, she embraces within her boundaries all conditions of soil and climate. Her population is 1,200,000. Like the colonies, the first impetus to the settlement of the country, or rather, the first great influx of population took place in consequence of the gold discoveries, and about the same time, too, as in the case of Australia. It was in 1851 that the great gold discoveries were made in Australia, and it was in 1849 that the first gold discoveries took place in California. Then followed the steps of progress that took place with us. In the first place the efforts of the people were given over to mining industries. Then came the era of pastoral pursuits, afterwards agricultural industries and cereal cultivation, and lastly came the great development of the irrigation enterprises, and of the great fruit and kindred industries, which depend so largely upon irrigation for their success. There was, however, this remarkable difference between the lines of settlement of California and those of Australia. When the first American settlers poured into the State they found a remarkable band of men settled in the country. This band of men were none other than a body of Roman Catholic priests or Spanish mission fathers, who went out at the time that California was part of the Mexican territory, for the purpose of Christianising the Indians who were inhabiting the country. These mission fathers went out into this barren waste, virtually with their lives in their hands, upwards of a century ago, established mission buildings

throughout the country, and taught the Indians not only the principles of religion, but also the principles of irrigation and of agriculture. They instructed them in the cultivation of the fig, vine, olive, and other European fruits, which are now distributed over many countries where the climate is warm and the soil is good. And now, when the old mission fathers are dead and gone, when their old mission buildings are everywhere falling into ruins and decay, when their very existence has been almost forgotten by the Californian people, the great object lesson which those men set bears fruit to-day in the fact that what was the most barren and arid part of the State in a condition of nature, has by the energy and enterprise of the people been transformed into by far and away the richest part of California, and has been made a beauty spot besides. (Applause.)

The Fresno Settlement.

In order that I may be enabled to bring the subject matter of my lecture clearly before you, I cannot do better than trace the line of investigation that I took in travelling through Western America, and point out to you some of the great lessons which may be learned from such investigation. (Applause.) Fresno was the first irrigation colony I visited. This place is situated a considerable distance south of San Francisco, in a dry, arid district—a treeless plain, where the average rainfall is but nine inches per annum. And here the first great lesson comes home to one with great force. It is a lesson, perhaps, which may be learned over and over again in Australia, but it is a lesson which comes home to one with great force when travelling as a stranger amid a strange people, and away from the old associations of home. That lesson is that the success of a town, a district, or a community, largely rests in the hands of the people themselves. (Applause.) There are between Fresno and San Francisco at least half a dozen places having the same possibilities of development as Fresno—the same soil, the same climate, the same sources of water supply ; and yet to-day these places remain mere roadside settlements, while Fresno is a city with 10,000 inhabitants, raised by the energy of its people to a thriving community, settled not upon large areas, but upon holdings ranging from 20, 30, and 50 acres apiece, the occupiers being engaged in intense cultivation, chiefly that of the raisin vine. It is the raisin and other similar industries which are light and attrac-

tive in their modes of treatment that have built up Fresno's success. This result is due to the enterprise of the early settlers in the district, men who experimented on their land with the waters from the King River, and little by little, step by step, overcame difficulties as they cropped up, until they have made a reputation for their beautiful and wealthy colony, which to-day is attracting men of similar tastes and aspirations to themselves from the other States of the great American union, and even from Old England herself—a striking illustration that the success of a district is in the hands of the people themselves. (Applause.) Another great lesson to be learned from the success of Fresno and other settlements in California is that the people engaged in such attractive industries as those to which I have referred brought into the country some of the brightest young men of the State. The pursuits were cheerful and bright, and soon became a powerful factor in attracting youth to the cultivation of the soil. Perhaps that is a lesson of all others that we Australians have to learn. (Applause.) Young Australia is not taking kindly to rural industries, but is drifting in far too great numbers for our future safety and progress into our great cities. In Victoria we have this unhappy position—a little over a million people in the colony, and yet 450,000 of these settled in one city alone; while in South Australia, with a population of something like 324,000, there are, I am told, between 123,000 and 124,000 in one single city. This is by no means a healthy condition of things, and by this unhappy tendency we are losing to-day some of the best brains and muscle we possess—brains and muscle that ought to be utilised in the country districts helping to build up the splendid destiny that awaits us, instead of crowding the avenues of labor in the populous centres. (Applause.) Young Australia is not so much to blame for this tendency as many people seem to think. We find that the men and women who came to these colonies were the pick of the old countries of Europe. They came here with their characters formed, having some knowledge of the world, knowing something of the difficulties they had to undergo, and also of the rewards that were to follow. They have done a splendid pioneering work, but it is unfair to ask a lad whose character is unformed, who has seen nothing of the world, to undertake the same hardships and privations; and it is not surprising that in these colonies young men are found glad to get away

from the lonely farm and the still more lonely station and come to the city. (Laughter and applause.) The remedy is with ourselves. We should back up the Government and the Legislature and our public men in every effort to brighten country life, to make the conditions of rural settlement more cheerful and attractive, and bring in a diversity of occupation in the country districts as the Californians have done so splendidly. (Applause.) Then we shall find that Young Australia is no different to the young people of other countries; we shall find him glad to go back again to the soil to help to build up the splendid destiny which our possibilities afford. (Applause.) There is still another lesson which I learned while in California, and one to which I refer with peculiar pleasure. It was that lesson which induced me to make a new departure in connection with my lectures by inviting the attendance of the ladies. (Applause.) I am pleased that the invitation has been so largely availed of this evening, for I have always found that the ladies have been some of my most sympathetic and intelligent critics. (Hear, hear.) The women of California were quick to see the point that engaging in a diversity of rural occupations that were light and attractive, and forming in themselves a powerful means of beautifying the home surroundings of the people, was a powerful factor in keeping their families near the old roof tree, and throughout the State they have thrown a very large moral and active assistance into the work of helping on the development of these enterprises. They are found as members of the agricultural and fruit associations, taking part in the debates and the work of these bodies, helping in many ways the fostering of a diversity of rural occupation. I believe that we have but to arouse thought upon this question to obtain as large an assistance from the ladies in Australia as our Californian brethren have away across the Pacific. (Applause.)

The Story of a Noble Woman.

To show you how far this assistance has been given I cannot do better than refer to the high tribute paid by Gustav Visen, a high authority on the dried fruit industry in California, to the life-work of a noble woman in the Fresno district. These are his words:—"The story of Miss Austin, and the development of her hedgerow vineyard, reads like a beautiful tale. Originally a school teacher by

occupation, she possessed many high and elevated ideas, among others that horticulture should become a business for women as well as for men. She removed to Fresno early in the seventies, and began planting a raisin vineyard. She gradually extended it until it contained a hundred acres of bearing raisins. Her example has been followed by many women throughout our State, and we have them now in all the great fruit districts actively engaged in horticultural pursuits. Miss Austin brought her womanly taste and refinement into the packing house. She was one of the originators of the fancy packing of raisins in this state and the county of Fresno, and the State of California owe her a debt of gratitude for the splendid efforts which she made to place the raisin industry upon a sound basis." (Applause.)

Bakersfield.

Leaving Fresno, the next place I visited was Bakersfield, situated 100 miles further south than Fresno, and again in a district where Nature has done nothing for the people, where the rainfall is but four and a-quarter inches per annum, and sometimes even gets down so low as two. Yet again, by means of irrigation and intense culture, there is settled here a thrifty community, whose efforts are given over to quite another production to that which obtains at Fresno, namely, the cultivation of lucerne for the raising and feeding of stock. The holdings range from 40 to 100 acres a-piece. It is interesting to relate that two men in partnership by the name of Carr and Haggan obtained 50,000 acres of land at Bakersfield at ten shillings per acre. Their country was of very little value without being developed. These men set to work with their own money and their own engineers, expended over £100,000, tapped the water from the Kern, a river which passes their doors, led the water out in a main channel 33 miles long, 100 feet wide, and from 2 to 4 feet deep, with distributing channels laid off from it at every 20 chains. The average fall of the land is 10 feet to 15 feet to the mile, and the channels are checked up, so as to give a uniform fall of 2 to 3 feet to the mile. The fall usually given to channels 15 feet in the bottom or over is 15 to 20 inches, and for smaller ones 2 to 3 feet per mile. They laid off this tremendous area in 7, 8, and 10-acre checks or plots, by running around each plot what they call a "levee," we would call it a crown or

bank ; it is simply a crown raised 9 to 12 inches high, eight feet across, sloped away gradually on both sides in order to allow their harvesting machinery to pass easily over them. In this way they are enabled to completely and successfully irrigate the whole of this great area which is all sown with lucerne. On one of their out-stations I saw 25,000 head of bullocks grazing on 25,000 acres, or at the rate of a bullock to the acre, and they had no less than 18,000 tons of lucerne stacked for the winter feeding of the cattle, while outside their line of fence, 100 acres would not keep a bullock alive. (Applause.)

Los Angelos.

My next visit was to the second city in California—Los Angelos (meaning in Spanish the City of the Angels)—having a population of 50,000, and whose commercial success rests largely on the fruit industries by means of irrigation, which has been found to be necessary because the rainfall is only 9 or 10 inches in the year. Los Angelos is situated 500 miles from San Francisco, and its people are settled on small areas engaged in the cultivation of the orange, lemon, soft-shelled walnut, apricot, and peach.

Tribute to a South Australian.

And here I wish to refer to a most interesting circumstance in which a late South Australian colonist was a prominent benefactor. Not long ago the cottony-cushion scale broke out among the oranges at this colony, and it was mainly owing to the scientific discoveries of one of your own colonists that this scale was destroyed. I refer to the late Mr. Frazer S. Crawford—(applause)—a gentleman who did much for entomology in this colony and throughout Australia. (Hear, hear.) He was one of those men—and, happily, you have quite a number of them—who might safely be called citizens of Australia, and not of Adelaide only. (Applause.) It so happened that a number of orange trees infected with the scale were imported some years ago to the Los Angelos district from Sydney. No one in California knew anything about the pest, which was proving most destructive in the State. Growers tried every effort, and all that ingenuity and skill could do was done to get rid of it. The City Corporation of Los Angelos recognised the importance of the orange industry to

their district, and offered a reward of 1,000 dollars to any man who would take a single tree in an infected grove and cure it of the scale. Several tried, but no one claimed the reward. It transpired, however, that Mr. Crawford had spent a considerable time in discovering the parasitic enemies of this pest, and he suggested that California should obtain these enemies, locate them in the infected groves, and thus fight the scale with nature's weapons. During the time of the Melbourne Exhibition a scientist came to Australia commissioned by the United States Government, and, travelling throughout Australia and New Zealand in search for the insect enemies of the scale, discovered a little Australian ladybird preying upon the scale with great avidity in New Zealand. There are 15 or 20 varieties of these beetles in the Australian colonies, all insect destroyers. Whenever seen in the orchard or vineyard be careful to preserve them. (Hear, hear.) Several colonies of the ladybirds were sent to the Los Angeles district, were placed in the infected groves, and were found to devour the scale—in fact, they bred quicker than did the scale. So great was the success of the experiment that the growers came in from all parts of the South and begged for a few of the Australian ladybirds to set in their groves and help them to fight the scale, and so completely had the Australian ladybird done its work that not a single scale was left alive in Southern California when I was there. So terrified were the Californians that the scale might come upon them again, with nothing to fight it, that the State Board of Horticulture, had to erect several glass houses to breed a limited number of the scale in order to keep some of the ladybirds alive. (Laughter.)

Riverside Colony.

My next visit was to one of the Show Colonies of California, called Riverside, where the Messrs. Chaffey Bros. first got their knowledge concerning irrigation. The land was purchased in 1870 at 20s. per acre. The bare land is now selling from £50 to £75 per acre; men can afford to give that price for it and make a living out of its cultivation. Riverside is situated in a district with a rainfall of 9 to 12 inches, where Nature has done very little for the people. The early settlers discovered that two serious difficulties threatened them. One was that after drawing the whole of the water out

of the little river which flowed through the district they had not sufficient water to irrigate their land, and the other difficulty was that they had a stiff and retentive soil to operate upon. The shortness of the water supply compelled the settlers to levy a heavy tax upon every acre in the colony, and with the money so raised they built expensive tunnels in the mountain-side in order to collect the drainage or seepage to supplement their ordinary supply, and they then cemented the whole of the main channels right up to the sources of supply, in order to save every drop of water that would otherwise have percolated through the soil. The scarcity of the water taught the people the important lesson of husbanding what they had. They were soon taught the valuable lesson of giving just the right quantity of water to the soil, and to use the water in such quantities that would keep their plants thriving and in a healthy condition. Too much water is as bad as too little. (Applause.) That was the first and valuable lesson that the Riverside colonists learnt, so that there was no fear of their blundering, as many irrigationists did, in using too much water; the stiff nature of the soil taught them to be careful to continually stir the surface of the land. They had to do so, otherwise the soil would have been soured by irrigation, and would have been made useless. Although they had difficulties that many of the irrigation colonies had not, they have beaten all, and have made Riverside the show-place of Southern California. (Applause.)

The Mormon Settlement of Utah.

My next visit was to the territory of Utah, which has been literally carved out of the American desert by the energy of the Mormon settlers. They settled upon comparatively small areas, and used the water out of the little streams. Utah is in this position. There is not an acre in the whole territory which could be cultivated without irrigation. There are 500,000 acres cultivated, and just 500,000 acres irrigated. And here again that great lesson with regard to the success of a district depending upon the people themselves, comes home to one. Nevada, which is between Utah and California is one of the old gold States. Her mineral resources attracted a population, and she was quickly elevated from the position of a territory to that of a State. There are two methods of Government in the American Union—one by means of a terri-

tory, which corresponds largely to our Crown colony, and the other by means of a State, which corresponds to a colony with full self-Government. Because of her mineral wealth, and her population, Nevada was quickly raised to a State; but there came a decadence in the mining industry of Nevada, just as in Australia, and the public men paid no attention to the possibilities of the agricultural development of Nevada until it was too late. As the old mining centres became deserted, population gradually drifted away to other places. In the palmy days she had hundreds of thousands of people, to-day she has only forty or fifty thousand, and for the first time in the history of the great Republic the people of Nevada are seriously considering the advisability of petitioning the Federal Government to reduce them back again from the position of a State to that of a territory. Utah on the other hand is, by means of irrigation, rapidly advancing. Her great Salt Lake City contains a population nearly as large as the number of people remaining in Nevada altogether. She has been gradually developing her resources. Her progress has been sound and sure, and she will soon claim the right of admission to the sisterhood of States—a striking illustration again that the success of a people is in the hands of the people themselves. (Applause.)

Colorado.

As regards Colorado, I found a peculiar condition of things, which shows how splendidly the Australian people have been favoured by Nature. I found that with a perfect irrigation, with a fair system of water supply, with a good soil and a good climate, the efforts of the people in Utah and Colorado were given over almost entirely to cultivating low-priced products, such as lucerne, cereals, potatoes, and root crops. I naturally enquired why the products that were enriching Southern California, and products of a greater variety were not cultivated here. The answer came, with all its significance, that the average elevation of the farming land is 3,000 to 4,000 feet above the sea level; and elevation, as you know, plays a very important part in all vegetation. Here it has limited with an iron hand the amount of products these people may successfully produce. They are, however, getting all that it is possible to get by intense culture out of the soil, and those who have a right to give a verdict declare that two of the most

prosperous communities in Western America are the territory of Utah and the State of Colorado.

The Industries of the Irrigation States.

I now want to say something about the charming industries that have been established in Southern California. (Applause.) I pick out these particular industries not because they are the only ones that have been established, but the time appears now ripe for gradually grafting them on to the ordinary avocations of the Australian farmer. I do not claim that they should substitute these new and charming industries for their present occupations, but that they should be worked in conjunction with them, or grafted, so to speak, on to the ordinary work of agriculture, for I believe that to all those people who have the courage and enterprise to take them up they will be a source of health, profit, and enjoyment to a far greater degree than now belongs to the present cheerless routine of farming in the Australian colonies. I am pleased that you have men amongst you who are capable of taking them up. (Applause.) The particular industries to which I refer are the raisin industry, prune cultivation, apricot and peach cultivation for drying, and, lastly, fig drying.

Raisin and Currant Drying.

I was pleased to find that in the Fresno, Los Angeles, and other raisin districts they cultivate the varieties of raisins that we cultivate here, comprising the Muscat Gordo Blanco, the Muscat of Alexandria, the Raisin des Dames, the Stoneless Sultana, and the Zante and Corinth Currants. As regards treatment, for dessert muscatels the practice is to pull the grapes when ripe, spread them upon wooden trays made of ordinary half-inch lining boards, 2 feet by 3 feet. The fresh fruit is spread upon these trays at the rate of 15 and 20 lbs. per tray, and as it is the practice to plant 10 feet apart and do without trellis or stakes, there is room for the trays to be laid between the rows to dry close to the vines whence the grapes were plucked. The fruit takes from 18 to 21 days to dry, is turned once during the operation by reversing the trays—and by the way, I think they got this very simple practice from Mr. Hardy, of South Australia. (Applause.) After being dried the grapes are placed in sweat boxes, made 3 feet long, 2 feet wide, and 8 inches deep, hold-

ing about 100 lbs. of dried fruit. The virtue of the sweating process is that it softens and swells up the fruit, and gives it a nice uniform texture and appearance. The fruit is put away in a close room for about 10 days or a fortnight, when it is brought out for packing in neat boxes with attractive labels, and is then ready for sending to market. With regard to pudding raisins, the grapes are pulled when ripe and taken to the drying factory, where they are dipped in a boiling solution in which is dissolved one pound of American concentrated lye—which is simply caustic potash—to 15 gallons of water. The virtue of the dipping process is to make minute cracks in the skin of the grape, so as to allow the water to evaporate more rapidly. After dipping, in order to give a bright amber colour to the raisins, they are run on the trays into sulphur boxes, made of boards large enough to hold ten or a dozen trays at a time. The doors are shut down, and fumes of sulphur burnt. The virtue of the sulphuring is that it brightens and fixes the colour and prevents darkening in the after drying process. The raisins are taken thence and spread out around the drying factory. Instead of taking 18 to 21 days, they only take about ten days to dry. They are turned once by reversing the trays, and after that are put away in sweat-boxes. They run them through two clever machines which the Californians have invented for the purpose. One is called a raisin stemmer, with simple wire cones which remove the stems; then they have another machine called the grader, through which again the raisins are put, the stems being blown out and the raisins sorted to two or three different grades—the first quality being graded into one box, the second in another, and the third in another. This question of grading is largely carried on throughout the fruit districts of California, and no fruit is sent to the drier or cannery without first being properly graded. The machines cost landed in Melbourne, without duty, £10 apiece. I brought out several sets for our department. With regard to currants, the currant industry holds the same relation to the raisin harvest that haymaking does to the wheat harvest. We know that the farmer can get his hay off, cured, and put away into the stacks before he starts on the main crop of wheat at all. And so with the currants. They ripen earlier than the raisins, only take half the time to dry—they will dry in four to six days without dipping—they can be gathered, dried, stemmed, and put away into the sweat boxes before

the grower starts on the main crop of raisins; therefore the cultivation of currants should go hand in hand with raisins.

Prune Drying, &c.

With regard to prunes. The Australian people are foolishly sending to France and Germany nearly all the money required for the prunes consumed here, for a product that we could produce splendidly. Whole districts in California are being developed by the cultivation of the prune, and I found that the varieties that they are growing there are the varieties that are growing here. There is the little French prune, the Fellemberg, De Montfort, and what they call the Silver Prune, which is none other than our Coe's Golden Drop Plum. And here are the processes of treatment. The fruit is pulled when ripe—it has to be very ripe—and is dipped into a boiling lye, made the same as for the raisins. Afterwards it is spread out upon wooden trays. The silver prunes are sulphured for half an hour—for an hour sometimes—in order to give a bright colour to them; but in case of the dark prunes no sulphuring is required. After being dried they are placed in sweat-boxes subjected to sweating for some days, and then brought out for packing and grading—prunes of the first quality run 50 to 60 to the lb.; second quality, 60 to 70; third quality, 70 to 90. Before packing they are dipped into a boiling-hot solution to which a little glucose and glycerine has been added, to give a glossy appearance to the fruit. They are packed at once in neat 20 and 40-lb. boxes, nailed up, and are ready for market. Indeed, all the operations are such that the ordinary Australian, without a large expenditure for plant, and with the great assistance of his family, could make the industry profitable. The drying becomes a safety valve against low prices, for as soon as the market for green fruit goes down the grower can at once take to drying, and the work is so light that his children can assist. (Applause.)

Apricots and Peaches.

With regard to apricots and peaches, the varieties that they cultivate are the varieties that we have here. For apricots they use the Hemskirk, Oullin's Early, and Moorpark; and for peaches the Early and Late Crawford, the Muir, and Foster. Here are the

methods of drying. The fruit is pulled when ripe and not too soft, so that it will retain its shape and not go to mush. It is divided with a knife and the stone removed, and then spread upon the wooden trays, always with the cut side upwards. It is then run into the sulphuring boxes, where it is sulphured for about half an hour to get a bright colour, and afterwards it is spread in the sun to dry—takes only three to five days to dry—and is then placed in sweat boxes to sweat for eight or ten days. No other process is required, and splendid returns are obtained in many districts in California from the cultivation of these fruits alone. (Applause.)

Fig Drying and Packing.

Lastly with regard to figs. I believe we shall beat the Californians when we have mastered their processes. The flavour of the Californian fruits I found is quite as good as ours, but with one exception, namely, in the case of figs. The figs cultivated there are inferior both in flavour and texture of the skin to our figs of the same varieties. They have a new variety called the White Adriatic, which is inferior to the White Genoa (which is called the White Provence in South Australia) that is growing around Adelaide. As regards the treatment. They pull the fruit when ripe, sulphur it in order to give it a bright colour. Afterwards the figs are put away for ten or twelve days, when they are brought out for packing, and before packing they are dipped from three to five seconds in a boiling hot brine which kills any insect germs and softens the fruit nicely for packing. The packer has a basin of salt water on the table into which he constantly dips his fingers to remove the stickiness from them; and he takes each individual fruit in his hands and with his thumbs flattens it out, splitting the underside of the fruit for half its length with his fingers, just as you may see in the imported fruit if you will examine it; he packs them in neat rows in small boxes, filling the box well above the top; a false top that just fits the inside of the box is inserted and then the boxes are put in a press and a gentle and uniform pressure applied to them which flattens the fruit out nicely. The packer puts a leaf of the green bay tree in the centre, and afterwards the fruit is put for a couple of months in a close room in order to allow the natural sugar in them to permeate the whole mass. They are then

ready to send to market, and the Californians are making magnificent profits in the fig industry. (Applause.)

Finding a Market.

Now, as to the question of markets. This is really the bugbear that frightens the Australian farmers when you ask them to take up these new departures. They say it takes several years to establish a trade, and they fear a glut of the local markets. But as a practical grower, who is putting his money into the industry, I consider the outlook hopeful. California was at one time in the position which we are now, but she has found that as the industry became a national one, brains, capital, and enterprise were attracted to it, and thus were opened up a hundred and one ways of disposing of their products that they had hitherto not thought of. To-day with the enormous area of 270,000 acres under vines and fruit, against about 40,000 acres in Australia, of which about 14,000 acres are in South Australia, and with prices averaging for the green fruit from $\frac{3}{4}$ d. to a 1d. per pound, the Californians find that the industry is paying the individual and the State better than ever before. The great proof of this is that the Californians are planting faster than ever to-day; whereas, under the old system, each man had to look for his own market, and there was great loss, the small grower now has half-a-dozen men running after him begging for his crop, sometimes buying it upon the trees before it is half-grown, and frequently making advances upon it. You will be surprised to hear, perhaps, that the Australians are sending to Europe £200,000 annually for raisins and currants alone. Directly you begin to produce a product in bulk and of uniform quality, then you begin to double and treble your home consumption. That has been the experience of California all along the line with her fruit industries, and I believe it will be ours here. She has increased the demand in her home market by the production of large bulk of uniform quality. How is it that the Australian people, with their magnificent facilities for fruit production are not fruit eaters? Simply because high-quality fruit is too scarce and too dear for universal consumption. It is the case in Victoria, and no doubt it is so here. If you can produce fruit in large bulk, learn the cheap methods of cultivation, and produce a good attractive quality, then you will find that the demand for these

products can be very largely increased. I believe it will take some time to fill the local markets, and after home consumption is supplied we have the markets of the world open to us by means of the great ocean facilities for transport which are now being opened up. (Applause.) When we get federation—(applause)—when the markets of Australia are thrown open upon equal terms to every Australian citizen, I believe that the prize will come not to those who have the greatest opportunities, but to the people who have the courage and enterprise to take advantage of such opportunities as they may possess. It is absurd to have grand opportunities and not make use of them. They might as well be in the middle of the Red Sea. (Hear, hear.) The progress of the world at the present moment is pointing in the same direction. If there be one thing more marked than another in the world's progress, it is that the great ocean facilities for transport are bringing not only Australia but every producing centre of the globe in touch with the great markets of the world. It is for us who have such rare advantages to find out the necessities of the great markets of the old world, and indeed of America too, and then grow and cultivate the products which the people in the other countries require. As soon as this is done the ocean liners will give us all the facilities for a quick transit to the foreign markets. (Hear, hear.) How true this is may be illustrated by the

Export of Apples and Pears to the English Market.

It is not so very long ago since the first experiments in the export of these fruits was tried, and the first experiments were signal failures. There were any number of men ready to exclaim that the idea of ever sending Australian fruit to Europe successfully was the dream of the visionary. And what do we find to-day? This splendid tribute being paid to the enterprise of the Tasmanian people: That the great mail boats are going out of their course and calling at Hobart for no other purpose than to load apples and pears for the English market, and the fruit is selling readily at such prices as are turning in £50 to £100 per acre to the growers. (Applause.) To show you how completely they have captured the English market with this fruit, I cannot do better than relate a very pleasing anecdote. There happened to be

several Australians returning homeward on the vessel with which I came from San Francisco. They were business men of Melbourne who knew nothing of the fruit industries; but, they said, one of the pleasing incidents of their trip through England was hearing, away in one corner of Wales, the barrow-man on the street calling out "Australian apples" for sale; and when they got to the races on Epsom Downs, every barrow-man on the course, no matter where his apples came from, had only "Australian apples" for sale. (Laughter and applause.)

Prospects of Fruit Trade with America.

When I was in New York I had a conversation with a great fruit salesman of that city, who said to me, "Tell me something about the fruit productions of your own country. We who are in the trade are watching with very great interest indeed the sales of your Australian apples and pears in the English market. We hear nothing but good accounts of the flavour and appearance of the fruit, and we are looking forward to your being able to tap this market as well as that of England. I want you to tell your growers that there is a great opening for them here for steady supplies. Your fruits can be landed in our markets when they are bare, when our prices are at the best, when there can be no competition with you, and when we are ready and willing to pay you a handsome price for the product you send us." (Applause.) The reversal of the seasons is going to play a very prominent part in the fruit industries in Australia, because it so happens that when our fruit harvests are at their best, the markets of Europe and America are mostly bare, and we can command high prices; and just the same with the dairying industry. It rests with us to foster these industries, so that we can send steady supplies. When in New York I learned that they were importing from Spain thousands of pounds worth of green grapes. The grapes are packed in dry cork sawdust, in barrels made of hardwood, and tightly put together. The fruit is shipped as ordinary cargo in the hold of the vessel, takes 20 to 25 days to cross the Atlantic, is stored for weeks in cool chambers after arrival in New York before it is sent to the saleroom, and the people of New York can have Spanish grapes on their tables on Christmas day, three months after they have left the Spanish vineyards. (Applause.) No man can say how far science

may yet enable us to go in this direction. As I said before, the time now appears ripe for the Australian colonists to develop some of these by-products, some of these charming industries that will bring health, profit, and enjoyment to the farmers, that will be the means of beautifying the home surroundings of the people, making the country more cheerful and attractive, and keeping our young people on the soil, where they ought to be, helping to build up the splendid destiny that awaits us. (Prolonged applause.)

Limelight Views of the Californian Farms and Houses.

Mr. A. Gunn, J.P., exhibited by means of limelight a large number of views taken from the irrigation colonies in California, and descriptive of places referred to by the lecturer. As each picture came in view Mr. West briefly described the scene it represented, and much interest was shown in the views by the audience, who at times manifested their appreciation by outbursts of applause.

Mr. West answered several questions, and at the close Mr. H. KELLY moved, and Mr. J. J. GREEN seconded, a vote of thanks to him. This was carried with acclamation.

In reply, Mr. WEST said—I thank you very sincerely for the expression of thanks. I thank you still more for the kind attention that you have given to me, and for the warm sympathy that you have manifested this evening. That is of more value than a complimentary vote of thanks. I trust that in any efforts your public men will make you will not be slow to afford them what sympathy and support you can, because advanced agriculture and horticulture, with the aid of irrigation, are going to be a powerful means of developing our young colonies. (Applause.)