

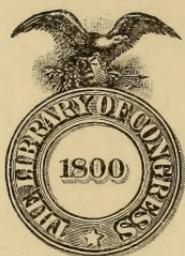
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OFFICIAL REPORT

OF THE

TWENTY-FOURTH

STATE FRUIT-GROWERS' CONVENTION

OF THE

STATE OF CALIFORNIA,

UNDER THE AUSPICES OF THE STATE BOARD OF HORTICULTURE,
AT SAN JOSÉ, DECEMBER 12-15, 1899.



SACRAMENTO:

A. J. JOHNSTON, : : : : SUPERINTENDENT STATE PRINTING.

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SYNOPSIS OF THE PROCEEDINGS

OF THE

TWENTY-FOURTH STATE FRUIT-GROWERS' CONVENTION.

(NOTE.—The State Board of Horticulture does not hold itself responsible for the opinions or theories which are expressed in the various papers, or words of the speakers, as they appear in this volume.)

FIRST DAY—TUESDAY.

SAN JOSÉ, CAL., December 12, 1899.

Pursuant to call, a convention of fruit-growers and others interested in horticulture and kindred pursuits in California, assembled in convention in Auditorium Hall.

The convention was called to order at 10 o'clock A. M. Rev. Mr. HASKELL, of San José, made an invocation.

Prof. C. W. CHILDS, of San José, and Judge W. H. AIKEN, of Wrights, were chosen Vice-Presidents.

ALFRED BARSTOW, of San José, was chosen Assistant Secretary.

WORDS OF WELCOME.

Hon. B. G. HURLBERT, of San José, delivered a warm address of welcome. In an impressive manner the speaker urged the importance of coöperation in the fruit interests in order to secure a remedy for the evils of excessive transportation rates that amount to only a degree less than prohibition of the industry, and also to secure legislation that in Congress is being delayed, no doubt through the influence of wealthy railway magnates. They have, it was urged, obstructed the building of the Nicaragua Canal after every preparation seemed to point to the commencement of the enterprise. The speaker pointed out that although this session of Congress is to be a long one, about six months, yet it has already gone forth that the "press of business" would be so great that it would be impossible to get at the canal bill this year. The great need of coöperation in order to prevent hurtful legislation in the way of so-called reciprocity treaties was pointed out. Judge

Hurlbert closed with a warm expression of welcome to the visitors from all parts of the State.

At the conclusion of the address a vote of thanks for the kind words of welcome was passed by the convention.

ADDRESS BY HON. ELLWOOD COOPER, PRESIDENT.

LADIES AND GENTLEMEN: This is the twenty-fourth State Fruit-Growers' Convention and the twentieth held under the auspices of the State Board of Horticulture.

The members of the State Board had the pleasure of meeting the people of San José in the fall of 1892. Seven years have passed, although to me it seems only a short time since we were here. Many changes have taken place, and much discouragement to fruit-growers by reason of the financial disturbances and the insufficient rainfall during the past three years; but notwithstanding the drawbacks great progress has been made toward solving the most important problems that concerns the fruit industry. Radical changes must of necessity be slow, because the great body of people in any vocation are critical and cautious of new methods or any deviation from old-time customs. New conditions require new modes to meet them. To be successful we must adapt our methods to the necessity that confronts us.

The greatest difficulty we have to overcome is a proper distribution of our fruits. This question has been discussed at every convention for the past fifteen years. At our last meeting I recommended that agents, selected from among our fruit-growers or those conversant with our fruit interests, be employed to travel through the different sections where fruit can be sold, to arrange with responsible mercantile houses to sell the fruits, to fix the prices, to hold meetings where necessary, and to exhibit to a certain extent how to cook the dried fruits by distributing the bulletin as published by the Board a few years ago. In other words, to educate the people in what is to their interest, as well as to determine the quantity that each market will take at a fair price to the producer; to arrange central houses in all the large markets so as to prevent overstocking or depressed prices. To be successful we must control the sales and manage our own products. These agents could work in the interests of our every product. A small per cent of the commissions paid would be sufficient to meet this expense. Such a plan would give us better railroad facilities; competition among the common carriers would insure the best possible terms and the best time in transit; all rebates would come to the producers.

Ian MacLaren, in giving his impressions of American character formed on a recent visit to the United States, speaks of the shadow on American public life—the money-getting spirit—and that all men, with

few exceptions, bow the knee to this golden calf. To get money without giving an equivalent is so deeply rooted that it tends to swerve us in all our business transactions. The lack of a high state of commercial honor seriously affects the public mind, and where it will end the future alone can determine. It is the universal opinion among fruit-growers that the best success can only be obtained by coöperation, unity, and concentration; and yet it has been stated in public discussion by intelligent fruit-growers that they were convinced that concentration was impossible. Why? There can be only one of two conclusions: that is, either a want of confidence in our ability to sell our own products, or a distrust of fair dealing by those intrusted with the management. Yet while we distrust each other we trust people whom we have never seen, and who manage the sales of our products and grow rich by our industry and labor. Combinations are not always formed for the best interests of the producers. A close examination will either discover a great lack of business tact or create a doubt as to the strict honesty of the managers. I might cite for example, the Walnut-Growers' Association of Southern California. The area adapted to the cultivation of the walnut is very limited. The product is not great, so that a combination in the sale of these nuts is not cumbersome. The last crop was the first where the different associations agreed to fix one price for the various grades. In former years each association did its business in a secret manner; that is, they made arrangements with some business firm to sell the entire product at not less than a given price, the seller to charge a fixed commission to be deducted from said price. The crop of 1898 being a short one, the price soon advanced above the association fixed prices. The contractors to sell the crop had, as soon as the arrangements with the various associations were perfected, made sub-contracts with nut-dealers, in all the districts where the nuts were consumed, to place them at a given price based upon the prices fixed with the associations. The advance in prices did not, therefore, benefit the producers who were in the associations. In 1899 the associations agreed to unite and fix a price at a given date before the crop was ready to harvest. In the early season I had written to our association that unless a certain course was pursued I would withdraw from the association. My plan was, first, to advance materially the price at which we would sell; second, that the nuts must be accepted and paid for, cash, at the shipping point; third, that we would guarantee to the purchasers that no nuts would be sold at a less price, but that we would reserve the right at any time to advance the price and in each advance guarantee the purchasers that no nuts would be sold at a less price than the last advance. At the Fresno Convention, held one year ago, a detailed statement was made by Mr. M. Theo. Kearney, President of the Raisin-Growers' Association. The above plan was based on the oper-

ations of that association. I was so impressed with the wisdom of the Fresno plan that I thought I saw clearly the way out of depressed prices for our fruits. To return to walnuts. I was offered one quarter of a cent a pound above the price to be fixed by the associations. This offer was made thirty days prior to the time the price was fixed. If the association walnuts were in the open market, why should any business firm offer a higher price for the association's grades outside the association? I confess I had my suspicion of the management. Evidently the product was not in the open market. The large purchasers probably had the promise of the nuts, or in some way were assured that they could get the control, and that may have had something to do with fixing the prices. Outside of this purchasing combination there were many buyers to the extent of several carloads each. These outsiders at least had the belief that they could not enter the combination of purchasers, and that to buy from the combination they would have to pay half a cent above the prices to be fixed, hence entered the field outside the associations in the hope of saving one quarter of a cent per pound. Thirty-five cents per one hundred pounds above the price fixed by the associations was freely offered in Santa Barbara. It is true that any association having a flat offer for the entire output would be justified in making a great effort to have a price made to conform to the offer; that is, if the price was high enough to warrant a living profit to the producer. I hope that this question will be fully discussed and that the members will receive much light from the experience of those who are in the associations. That we will arrive sooner or later at the proper solution of this question is my honest conviction.

Insect Pests.—This subject, second in importance to the fruit-grower, has received our attention at every convention since organization. We have made great advances in combating the destructive enemies. The theory which I have advanced in my opening addresses for many years grows more and more fixed in my mind as the only intelligent one and which eventually will be universal throughout the civilized world with all the cultivators of the soil: that is, to keep these invading foes in subjection by their natural enemies. Twenty years ago, what was called the San José scale was making terrible havoc on the deciduous fruits and fruit trees in Santa Clara County. To-day this pest is scarcely known by the fruit-growers. Later, the *Icerya purchasi*, commonly called the "white scale," threatened the citrus industry in Southern California. To-day there is not a citrus-grower in that region who fears this enemy. Still later, the ravages of the black scale on the olive was such a menace that it was a question whether the product would be sufficient to meet the expense of fighting the pest. Still later, the purple scale made its appearance in Southern California and spread rapidly on the citrus trees, and was even a worse enemy than the *Icerya*

purchasi. We hear that in Hawaii this pest has been completely destroyed by a ladybird. The agent sent to the Islands to procure colonies of this ladybird, to be distributed in the infested districts, could find only a few specimens, and the problem he had to solve was to find sufficient food to make a success in propagating the beetles to send here.

It is not necessary to reiterate what performed this important service to the fruit-growers. The history is well known to all of you. There is no doubt in my mind but that we will be confronted from time to time with new and dangerous pests. We should therefore be organized and ready to meet them with their natural enemies.

I beg to refer you to my address made one year ago at Fresno, in which I urged that a sufficient appropriation be made and a special bureau be established as a part of the State Board of Horticulture, for the investigation of predaceous insects and parasites. This work should be continuous and permanent. We have recently read of a worm, something like an army worm, destroying the alfalfa fields by the thousands of acres in the middle West. Also, of the attack on the beet fields. It is possible that this worm may reach us here and cause great loss to the sugar-beet industry, as also to the alfalfa fields of the San Joaquin Valley.

The codling moth is probably more generally distributed throughout the United States than any other fruit pest, and no doubt causes greater loss than any other known pest. In many places the growing of apples and pears has been abandoned on account of it, and yet not one dollar has been appropriated to investigate or to search for a possible enemy to keep it in check. Thousands of dollars are spent every year in spraying with poisons to save a part of the crop.

In Hamilton's Essays, where the discovery of the attraction of gravitation by Sir Isaac Newton is referred to, it is said that it took the world six thousand years to produce a thinker. How much longer will be required to produce in the minds of the cultivators of trees and plants the comprehension of natural laws? The late Baron Ferdinand von Mueller, the great botanist of Australia, has laid down the theory that the human mind cannot be properly or fully developed without coming in contact with growing plants. According to this theory, the fruit-grower and the farmer should be in advance of any other class. When nature plants a forest she makes no mistakes. She plants the right trees in the right places; flowers, annuals, bulbous roots, flowering shrubs and vines, all flourish in their beauty and grandeur. No enemies—insects or brute animals—materially disturb them, at least until invaded by man. If we wish to succeed we must follow nature and maintain the same balance as created.

The State Board has available \$7,500 to be spent in the search for the enemies of the destroyers of our fruits. We have an agent, George

Compere, now traveling with Albert Koebele, who is in the service of the Hawaiian government. The last letter received from George Compere was dated October 19th, from Sura, Fiji. He had made several discoveries, and I am very hopeful that some important finds will be the result of his trip. It is my intention, always providing that my brother Commissioners agree with me, to send him to Southern Europe to search for the parasite of the codling moth. It has been asserted that in Southern France, where the codling moth is always present, it has been kept in check by its natural enemy. This information was published by the State Board nearly twenty years ago.

The Citron.—The U. S. Department of Agriculture has recently taken a great interest in the culture of the citron. This product is brought into the United States in pickle and processed here so as to avoid the import duty. An arrangement has been made by the Department to have our product processed both in New York and in Chicago. They ask for shipments of not less than one hundred pounds of the different varieties, so as to ascertain if the California fruit is equal to the foreign and to establish the value of this product for us. The fruit must be taken before it turns color.

Food Adulteration.—In my address at the Fresno Convention last year, and previously, I clearly pointed out the injury done to fruit-growers by adulteration and substitution, the danger to health, and, what is more alarming, the moral aspect. This subject is down on the program to be discussed, and I trust will be fully considered by the convention. We had hoped to obtain legislation to protect the producers, but failed to get any measure to aid us. I am also sorry to report that the Interstate Pure Food Law that was pending in Congress did not pass. The combination of capital interested in this dishonest and profitable business seems to be too great. How such an important measure is to be reached is more than I can see at this writing. All of us are familiar with the canned beef scandal, spoiled bacon, etc., etc.—no one found guilty and no one punished. In the past summer we were visited by many representatives of Eastern agricultural colleges. A report was made by these representatives that there had been discovered a rock in North Carolina that could be ground into powder to mix with wheat flour, and that whole trainloads were sent West and from that point re-shipped East, North, and South to mix with the flour of wheat. There does not appear to be anything that can escape being tampered with by swindlers who want gain without giving an equivalent. It is a most distressing state of affairs.

Water Supply.—This subject is on our program, and no doubt much information will be gained by hearing of the experiences of many

fruit-growers who have saved their crops by digging deep wells and pumping the water to irrigate.

Railroads.—I treated this subject so fully seven years ago at this place that I beg to refer you to that address, to be found in the Report for 1893-94, page 114. I have not changed my opinion as to the general plan of railroad management, but, on the contrary, am more and more convinced of the wisdom of such a plan.

Protection of our Forests.—It is very gratifying to know that our Government is being rapidly educated up to the importance of this subject. Recently a proclamation by the President was issued withdrawing from settlement all the Coast Range or Santa Ynez Mountains from Gaviota Pass to the Ventura line. Three years ago the survey of these mountains was completed and the district advertised for settlement. Occupation for homesteads in this rugged district would be very disastrous to the valleys between the mountains and the ocean, if settled up by the ordinary homeseeker. In the first place, it would lead to continuous fires, and possibly the drying up of all the mountain streams, and thereby make eventually what is now a valuable and important part of our State practically worthless. Secondly, if settled up these lands could not be regarded as having any value for producing a living to the settler. My experience leads to this conclusion, as those who have squatted on this land in years past, with few exceptions, have not prospered. Their living has depended upon making into firewood the natural growth and hauling it to market to be sold. Some four or five years ago a great fire raged in these mountains immediately back of my land; while it did not consume the chaparral and trees, all were killed. The following year another fire raged over the same district. The dead brush and dead trees added to its fury so that everything in its path was completely devastated. The first flood after this fire brought down ashes, the water being almost black as ink. The bottom as well as the sides of the main channel were black. This condition remained about half the winter. The remainder of that winter and the two following the water ran muddy the entire time, bringing down sand and gravel by tens of thousands of tons, silting up the creek, destroying the springs and preventing the natural storage of water. Formerly this mountain was such a thicket that only wild animals could penetrate it; now it is barren and where not rocky is over shoe-top deep in sand and ashes. To perpetuate this condition, people, mostly foreigners, who have sheep and cattle, pasture them during the fall over this region, destroying all the young growth of bushes and trees germinated from seeds left after the fire. If this is allowed to continue God only knows what will be the result to the valleys below. In former years it required from five to six inches of rainfall to make flood water, and

which usually ran clear. Now, one or two inches of heavy rain comes down in floods, bringing mud and sand—all runs off and flows into the ocean. It is a fact, which we know by observation, that about twice as much rain falls in these mountains as is registered in the valleys below. This thicket preserved this heavy rainfall and fortified the mountain streams, which gave us water during the summer and fall months.

I recommend that this convention pass resolutions asking Congress to pass an act withdrawing from settlement for homes all the mountain lands not occupied in the State of California, and restricting the devastation caused by prospecting for mineral wealth and for mining purposes.

Committee on President's Address.

On motion, the address of President Cooper was referred to a committee consisting of Judge J. R. Lewis, W. P. Cragin, and H. P. Stabler.

APPOINTMENT OF COMMITTEES.

The President announced the appointment of the following committees:

On Resolutions.

W. H. AIKEN, Wrights.
T. A. RICE, El Rio.

ALFRED BARSTOW, San José.
JOHN MARKLEY, Sonoma.

JOHN ROCK, Niles.

On Legislation.

PROF. C. W. CHILDS, San José.
G. W. HUTCHINS, Marysville.

H. P. STABLER, Yuba City.
JUDGE J. R. LEWIS, San José.

B. N. ROWLEY, San Francisco.

On Marketing.

R. D. STEPHENS, Sacramento.
A. D. CUTTS, Live Oak.
ED. BERWICK, Monterey.
A. BLOCK, Santa Clara.

PROF. D. T. FOWLER, Berkeley.
A. H. NAFTZGER, Los Angeles.
M. THEO. KEARNEY, Fresno.
F. M. RIGHTER, Campbell.

FRANK H. BUCK, Vacaville.

Standing Committee on Transportation.

R. D. STEPHENS, Sacramento.
ALEXANDER GORDON, Fresno.

A. BLOCK, Santa Clara.
W. N. GLADDEN, Healdsburg.

N. W. BLANCHARD, Santa Paula.

A recess was then taken until 1:30 o'clock.

AFTERNOON SESSION—FIRST DAY.

TUESDAY, December 12, 1899.

TOPICS FOR THE DAY: *Review of the Year's Fruit Shipments; Distribution, Marketing, and Increasing the Consumption of Fruit and Fruit Products.*

At 1:30 o'clock P. M. the convention reassembled, President Cooper in the chair.

REPORT OF THE CALIFORNIA FRUIT GROWERS AND SHIPPERS' ASSOCIATION.

BY COL. H. WEINSTOCK, OF SACRAMENTO, PRESIDENT AND GENERAL MANAGER.

The importance of widely distributing California fruits in the largest number of Eastern markets and avoiding gluts in a few large centers, seems to be keenly appreciated by growers and shippers, as evidenced by the larger shipments this year to smaller markets, and the opening of new markets in interior places—which, in the report, are grouped under the heading "minor points"—thus in the interest of the grower, preventing the gluts so common before the creation of this association. The consignments to foreign markets have also greatly increased—from 42 cars shipped by rail in 1896 to England alone, to 124 cars in 1899, shipped to England, Scotland, Germany, and Mexico.

In the early spring it was the opinion of the best informed growers and shippers that the largest yield of fruit California ever produced would be harvested this year; but the late frost, wind, and rain proved disastrous to the cherries and apricots, and the early rains and unfavorable conditions, to the grapes. The shipments of peaches, however, were double that of any year since 1894. The shipments of plums and prunes increased 63 per cent over last year. The shipments of apples decreased nearly 20 per cent, while the shipments of pears during the past four years have varied but slightly. The total shipments of 1899 exceeded that of 1898 by 1,862 cars—an increase of 37 per cent.

The California Fruit Growers and Shippers' Association has continued to successfully carry on the work delegated to it by the Growers, assembled in convention in 1894:—maintaining union auction rooms, at each Eastern auction point, free and open to all buyers, thus getting *all* the buyers and *all* the fruit under one roof, at one time, and thereby securing the very highest market price for the fruit. The Bureau of Information has continued the publication of the daily bulletin, giving in tabulated form the report of the railroad companies, of the daily Eastern

fruit shipments, and the destination of the cars. While the bulletin is not all that could be desired, and it can hardly be hoped that it can be made perfect, yet it has, even in its imperfect state, proved of great value to the grower and shipper, by giving them approximate information of the daily shipments, the varieties of fruit going forward, and the date of their probable arrival in the Eastern markets. Since the issuance of the daily bulletin, the glutting of Eastern markets has been of rare occurrence, of short duration, and attributable solely to local causes.

TABLE SHOWING DESTINATION AND NUMBER OF CARS SHIPPED TO EACH PLACE IN 1895, 1896, 1897, 1898, AND 1899.

DESTINATION—	1895.	1896.	1897.	1898.	1899.
Chicago	1,473	1,007	1,410	1,203	1,060
New York	862	1,055	1,456	1,429	1,694
Boston	279	471	543	536	710
Philadelphia	82	90	202	176	339
Minneapolis	124	147	180	167	247
Baltimore	37	5	16	16	67
Cincinnati	15	2	20	15	89
Kansas City	91	81	86	116	165
Montreal	44	81	98	96	128
New Orleans	75	85	81	62	126
Denver	148	136	98	229	269
St. Louis	78	68	59	27	115
St. Paul	109	91	121	67	125
Omaha	176	85	165	156	194
Cleveland	29	10	37	25	83
Pittsburg	26	25	40	47	137
Buffalo	15	7	15	5	34
Milwaukee	42	32	52	19	60
England	---	42	58	42	117
Scotland	---	---	---	---	4
Germany	---	---	---	---	2
Mexico	---	---	---	1	1
Minor Points—Canada	---	---	---	---	52
Minor Points—United States	863	532	586	572	1,051
Totals	4,568	4,052	5,323	5,007	6,869

TABLE SHOWING THE NUMBER OF CARS OF EACH VARIETY SHIPPED IN 1895, 1896, 1897, 1898, AND 1899.

VARIETIES—	1895.	1896.	1897.	1898.	1899.
Pears	1,187	1,624	1,640	1,595	1,684
Peaches	1,289	976	1,316	1,103	2,625
Grapes	1,010	712	1,100	734	847
Plums and Prunes	465	407	742	542	885
Apricots	162	172	177	123	90
Cherries	180	88	239	297	85
Apples	105	53	61	596	490
Quinces	13	8	24	1	19
Figs	---	2	3	---	---
Nectarines	5	1	10	---	2
Persimmons	---	---	2	1	1
Mixed	152	9	9	15	24
Cars not reported	---	---	---	---	117
Totals	4,568	4,052	5,323	5,007	6,869

REPORTS BY COMMITTEES.**Foreign Consular Service.**

The following report of Committee on Foreign Consular Service was submitted by the chairman, EDWARD BERWICK, of Monterey :

At the Fresno convention a year ago a committee was appointed to endeavor to obtain from the Government the use of the foreign consular services to give us the information regarding fruit that we so much needed from the different countries, as to the prospective crops in foreign countries, as to the stocks in hand, as to the whole condition of the markets there, and as to the price fluctuations; in fact, give us all details that they possibly could, both by letter and by wire, through certain months of the year. The committee consisted of Emory E. Smith, Edward F. Adams, and myself. We sent details of what we wanted to the Secretary of Agriculture and to the Secretary of State. We also sent to the National Farmers' Convention at Fort Worth, Texas, asking them to aid us by applying also on behalf of the Eastern growers for similar information, and they did so through Mr. Stowe, their secretary. We have had much discouragement in the earlier part of this correspondence. In the first place our letters to our Government were said to have been lost,—those sent to the office of the Agricultural Department and to the Department of State. Your committee had then to write those lengthy epistles once more. We then heard there was small hope for us. I will read a few of the letters.

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF SECRETARY,
WASHINGTON, D. C., December 28, 1898.

MR. EDWARD BERWICK, *Monterey, Cal.* :

DEAR SIR: I have your letter of the 22d. Our records do not show the receipt of your previous communication on the subject of foreign consular service, and I have no recollection of seeing it.

I may state, however, that I wrote yesterday to Mr. John M. Stahl, in reply to a similar inquiry from him, and stated that in my opinion such consular reports would be of little value unless the consuls could be in some way compensated for making them. I added that no appropriation is made to this Department from which such compensation could be paid.

Respectfully,

(Signed:) JAMES WILSON,
Secretary.

I was not very much pleased on behalf of the committee, and I wrote to President McKinley and to Mr. John Hyde, statistician of the Bureau of Agriculture, who promised us something. His letter to me reads as follows:

UNITED STATES DEPARTMENT OF AGRICULTURE,
DIVISION OF STATISTICS,
WASHINGTON, D. C., April 5, 1899.

MR. EDWARD BERWICK, *Monterey, Cal.* :

DEAR SIR: Replying to your letter of the 25th ultimo, I beg to state that a plan for the utilization of the services of the United States consuls in foreign countries, in the matter of reporting periodically upon the condition and prospects of the crops in the countries to which they are accredited, is now in preparation. It is not, however, so easy a matter to arrange for as you may think. No extra compensation can be paid to the consuls, and efforts in the same direction in past years have not been altogether satisfactory. It is hoped, however, that some arrangement will be made that will be of service to the fruit-growers of your great State.

Very truly yours,

(Signed:) JOHN HYDE,
Statistician.

Then I wrote to him that the plan should not only be formulated but put into operation, and I got a very curt reply indeed. Following is Mr. Hyde's letter:

UNITED STATES DEPARTMENT OF AGRICULTURE,
DIVISION OF STATISTICS,
WASHINGTON, D. C., May 27, 1899.

MR. EDWARD BERWICK, *Monterey, Cal.:*

DEAR SIR: There are no further developments to report with regard to the consular crop-reporting proposition. As soon as anything definite is arranged I will advise you.

Very truly yours,

(Signed :) JOHN HYDE,
Statistician.

This is the last letter I had from Mr. Hyde. Then I applied to the Secretary of State. I have a letter from the State Department, as follows:

DEPARTMENT OF STATE, WASHINGTON, D. C.

EDWARD BERWICK, Esq., *Monterey, Cal.:*

DEAR SIR: I have received by reference from the President, your letter to him of the 10th instant, expressing your desire to obtain at specified times information of the condition of fruit crops and fluctuations in current prices of horticultural produce.

In reply I have to say the Department of Agriculture collects through consular officers considerable information of the character of that desired by you and publishes it in the monthly bulletin of crop reports. It appears from your letter that you are already in communication with Secretary Wilson, and it is believed that your request should properly be formulated by that Department before the aid of the consular service is invoked in order that there may be no duplication of the information collected. This Department will be glad to have consular officers cooperate with the Secretary of Agriculture, so far as they properly can, in collecting the information which you desire to obtain.

I am, sir, your obedient servant,

(Signed:) DAVID J. HILL,
Assistant Secretary.

Mr. Wilson then came to the Coast and I wrote to him, addressing my letters to the Palace Hotel, in an attempt to obtain an interview with him, but I was not successful in that, for my letters did not reach him until he was leaving for the East. He then wrote to me saying he would have written to me appointing a time for the hearing of this matter, but that my letter had arrived too late. I then wrote again to him, telling him what we wanted; no reply came to me. I then wrote to President McKinley again, again telling him the state of affairs, and I got a reply from him—an official reply. The President's letter is as follows:

EXECUTIVE MANSION, WASHINGTON, Nov. 16, 1899.

MR. EDWARD BERWICK, *Monterey, Cal.:*

MY DEAR SIR: I beg leave to acknowledge your letter of recent date, and to state that by the President's direction it has been referred for the consideration of the Secretary of State.

Very truly yours,

(Signed:) J. A. PORTER,
Secretary to the President.

I then wrote to Mr. Wilson this letter:

MONTEREY, CAL., November 6, 1899.

HON. JAMES WILSON, *Secretary of Agriculture, Washington, D. C.:*

DEAR SIR: On receipt of your letter, dated "Palace Hotel, S. F.," I wrote you on behalf of the fruit growers of the State of California, reiterating their request for certain information previously detailed to your department, and to that of the Secretary of State.

As the department clerks were too busy in your office to vouchsafe me so much as a postal in reply, I addressed myself to an office where they always appear to have leisure at least for business courtesy—that of President McKinley.

My letter to him of the 10th ultimo was referred to the Secretary of State, and on the 24th ultimo Assistant Secretary D. J. Hill wrote me: "It is believed that your request should properly be formulated by the Agricultural Department before the aid of the consular service is invoked, in order that there may be no duplication of the information collected. This Department will be glad to have consular officers cooperate with the Secretary of Agriculture," etc., etc.

As I have been given to understand previously from Mr. John Hyde, that the difficulty was to get the adequate cooperation of the consular service, I trust, now that the consent of the consular department is obtained, immediate action will be taken by your department. Nearly a year has elapsed since the request of the fruit-growers was presented to your office, and the formula-

tion of plans, that Mr. Hyde promised does not require an eternity to effect. If any newspaper agitation is required to make manifest the popular desire in this matter, I can soon start it, as my fellow-committeemen, Mr. E. F. Adams, of the San Francisco "Chronicle," Emory E. Smith, and myself are all tolerably versed in journalism. I should like to use my pen to tell what your department has done for California, especially as I was one of the "mugwumps" who voted for McKinley.

Requesting acknowledgment of this at an early date, I am, dear sir,

Yours truly,

(Signed:) EDWARD BERWICK.

I then got back this letter after writing that one. It is from Mr. Wilson himself:

DEPARTMENT OF AGRICULTURE, OFFICE OF THE SECRETARY,
WASHINGTON, D. C., November 18, 1899.

MR. EDWARD BERWICK, *Monterey, Cal.:*

DEAR SIR: I have your letter of November 6th, in which you charge us with want of business courtesy. The same letter, however, intimates that I have answered one communication from you and Mr. Hyde another. We make every effort to answer all letters received at this department, but the previous communication to which you refer failed to reach us, and for that sufficient reason was not attended to.

If I remember rightly you wanted telegraphic reports from our consuls abroad regarding the condition of crops. Permit me to say that this could be done, but it would require Congressional legislation and a heavy appropriation. Neither the State Department nor this Department has a dollar with which this telegraphing could be done. If it should please Congress to give us the money for that purpose, there will be no difficulty whatever about getting the desired reports by cable. If consular reports *by mail* are what you desire, probably this Department could arrange with the State Department to have such reports furnished.

I am informed by Mr. Hyde that he wrote you last spring that it was then too late to take action to be of any use in this crop year, but that the subject would be considered this winter. If you will now submit a brief statement of just what your plan is, I will give it careful consideration and personal attention and advise you of my decision in the matter.

Respectfully,

(Signed:) JAMES WILSON,
Secretary.

Mr. Wilson says he will give this his personal attention if you, gentlemen, will formulate in some concise shape just what you want done, and will then authorize a committee to continue its correspondence and try to obtain the information desired. As to the details he asks for, we sent full details as to what we wanted. We named the countries, specified the fruits, and detailed the times when the information was required by letter and when it was required by wire—those matters were all detailed to them. But as to how this matter was to be disseminated, Mr. Righter suggested handing the information to the Associated Press, and I believe that would be a good plan.

The committee would recommend that a committee be appointed to carry on this work, and send the details to Mr. Wilson again. It would also recommend that bodies such as the Fresno Raisin-Growers' Association, and any other fruit exchanges, also send their desires in this matter, urging that the work be done. Your committee also recommends that your Congressmen and Senators be requested to secure the appropriation necessary to remunerate the foreign consuls and to pay for the use of the cable when required.

MR. RIGHTER. I move that the report be received and the committee continued.

Motion carried.

Nicaragua Canal.

MR. BERWICK. I also happen to be the chairman of the Committee on the Nicaragua Canal, and will make the report on behalf of that committee:

We have not had a very successful year as a canal committee. Mr. Gordon of Fresno and Mr. Sprague of Los Angeles are the other mem-

bers of the committee, and I must say that we have had very little encouragement. We all felt very sanguine that there was no need for much more effort on our part, after the *Oregon* had such trouble about getting around the Cape, thinking that the Government would take it to heart and try to get the ships through the canal, but now we find ourselves back again with the "old chestnut" and the "innocuous desuetude" that the canal matter had fallen into. The committee wrote to the Secretary of State to know what was the last condition of affairs regarding the Walker Commission. The Secretary wrote back the last report of the Walker Commission issued in the month of June; that report was signed by Admiral Walker and an engineer called Haupt, and by Col. Haynes of the Engineers. They all said that the canal was a practically feasible proposition; the only disagreement was regarding the price. The two former men I mentioned put the cost down to about \$124,000,000—this was not to be the narrow canal proposed in previous years, but one equal to all our largest ships, and with locks big enough to raise and lower them as it might be, for this \$124,000,000.

MR. JOHNSTON. I believe Mr. Haynes put the figure twenty per cent higher.

MR. BERWICK. During Congress we tried to take congressional action, but were not successful; we had to contend with a million-dollar commission professedly to forward the interests of the canal, but really to stay the canal as long as possible at the instigation of the transportation companies. We recommend that you urge on your Congressmen, and your different parties also, to go to work at once and construct a canal and not leave the American nation the laughing stock of the world in forbidding any other nation to build that canal and yet refusing to build it themselves. You know that there have been commissions appointed and surveys made for the last fifteen years, and many of you know also that the height of the mountain chain there is the great difficulty. There are many shorter canals to be surveyed than the Nicaragua canal, but the elevation of the proposed Nicaragua canal and the body of water available are the two chief points that recommend that as being the site for the canal. We believe that the American people want this canal and that the transportation companies oppose it, and we want you to urge it wherever you have any influence. We ask you to use all your influence to make Congress take immediate action and prepare the necessary power to forward the necessary scheme to furnish bonds for the building of that canal by the United States government direct without the intervention of any company whatever. I will say further that there is no taxation needed at all. I told ex-Speaker Reed myself, in the *Del Monte*, that we did not want any appropriation; that we simply wanted bonds to cover

the cost of the canal to be issued as the work was done, and that the tolls from that canal would amply cover the interest and also provide a sinking fund which would pay for those bonds when they became due. It was simply giving the nation credit for the benefit of the whole nation and the world.

MR. RIGHTER. I will move the adoption of the recommendations made by the chairman of that committee, and that the committee be continued.

Carried.

Organization of Fruit-Growers' Associations.

The Executive Committee appointed by the Convention of Fruit-Growers, held at Sacramento, May 23, 1899, submitted the following report:

Your committee beg leave to make the following report:

This committee was appointed through the following action of the aforesaid convention:

To the Chairman and Members of the Fruit-Growers' Convention:

SACRAMENTO, May 23, 1899.

GENTLEMEN: We, your committee appointed to consider all resolutions and to report a plan of organization, beg to submit the following report:

The committee met immediately after the recess taken by the convention and organized by the election of Alexander Gordon of Fresno as chairman, and H. P. Stabler of Yuba City as secretary. Several gentlemen appeared before the committee with plans for organization, which plans were considered in detail by the committee.

Resolved, That we advise the immediate organization of a Fruit Growers' Association of Northern California. The purposes of this organization shall be to establish a car line or any other method of securing transportation relief and facilitate the profitable marketing of our fresh and dried deciduous fruit.

ALEXANDER GORDON, Chairman.

F. A. CHADBOURNE.

W. R. FOUNTAIN.

W. E. LOVDAL.

H. P. STABLER.

The report was adopted and an executive committee was constituted as follows: W. R. Fountain, Newcastle; Fred C. Miles, Penryn; E. I. Galvin, Sacramento; W. E. Lovdal, Sacramento; F. A. Chadbourne, Suisun; and R. D. Stephens, Sacramento.

The committee organized by electing R. D. Stephens, chairman, F. C. Miles, secretary, and E. I. Galvin, treasurer.

The committee immediately entered upon the discharge of the duty for which it was created, and after thorough consideration unanimously adopted the following plan: The Executive Committee chosen by the recent convention of fruit-growers of California to perfect such a plan of organization as should result in promoting their best interests and securing their release from the present method of fruit transportation and marketing that threatens to involve them in disastrous loss, if not financial ruin, has given most careful consideration to the whole subject and has reached this unanimous conclusion:

First—That the fruit-growers organize for mutual protection;

Second—That the fruit-growers form a corporation for the purpose of owning and operating a refrigerator car line;

Third—That the fruit-growers organize for the purpose of marketing their fruits and fruit products;

Fourth—In doing which they will be allowed the utmost liberty in the disposal of their fruit, either by selling for spot cash at landing point, through our own representative in the large cities, or through Messrs. Porter or Earl, or any agent whom the grower or shipper designates.

For the purpose of organizing the growers the committee held meetings in all the fruit sections of the Sacramento and San Joaquin valleys and in all other fruit sections

in the central and northern part of the State. The first meeting was held at Newcastle on June 18th, followed by meetings at Suisun and Vacaville.

The committee did all in its power to bring about an organization of the fruit-growers of the State as outlined by the convention, but has failed so far to accomplish the desired result. It found that it was antagonized by men representing millions of dollars, whose interests are diametrically opposed to those of the grower. The failure to perfect an organization of the growers may be attributed to the following: Apathy, jealousy, intimidation, dissensions, crop mortgages, concessions, and selfishness. Apathy on the part of some who permitted others to think for them. Jealousy on the part of others who fear that their neighbors may be more benefited through the organization than themselves. Dissension among growers caused by difference of opinion as to how to proceed in organizing and upon what plan. Intimidation controls the action of many who are given to understand that any action on their part to in any way aid the movement being made to organize might result in materially impairing their personal interests. Crop mortgages prevent independent action on the part of the mortgagees. Concessions made to growers in the way of rebate on commissions, so much per package, or in any way that would be satisfactory to the parties interested. Selfishness on the part of many who desire to sell to one or the other of the great commission and shipping organizations, the opportunity for which was offered through the agitation being made in favor of organizing the growers for the purpose of marketing their products. Such men would say, "You are all right, go ahead; we are with you, but we have a lot of fruit we wish to sell f. o. b., and are now negotiating to that end. When we have sold we will be with you heart and soul, and do all we can to aid in building up an organization that will better protect their interests than has been done in the past. In the mean time, however, do not for the world abandon the effort to bring about a perfect and complete organization of the State."

Respectfully submitted.

R. D. STEPHENS,
Chairman.

The report was, on motion, adopted.

Report of Committee on Transportation.

Mr. STEPHENS submitted a report from the Committee on Transportation appointed by the Fruit-Growers' Convention, held at Fresno, in November, 1898, as follows:

Your committee most respectfully beg leave to make the following report. The following correspondence is submitted:

SAN FRANCISCO, May 18, 1899.

MR. WILLIAM SPROULE, *Freight Traffic Manager Southern Pacific Company*:

DEAR SIR: The Committee on Transportation appointed at the last Fruit-Growers' Convention held a meeting on Tuesday of this week and selected us as a committee to wait upon you and ascertain what aid the Southern Pacific Company is willing to extend to the fruit-growers of the State in their desire to secure cheaper facilities for marketing their fruit. Knowing that it is to the interest of the Southern Pacific Company to encourage the fruit industry of California, and appreciating the fact that the company has made many concessions to growers in the past, in furnishing ventilator cars and an expedited train service and in other ways, we feel no hesitancy at this time in beseeching the company to grant us its assurance of assistance in the present crisis. Our committee is instructed to submit its report to a general convention of fruit-growers to be held in Sacramento on Tuesday of next week, and in order that we may be able to place the whole matter before the growers as accurately and intelligently as possible, we respectfully request you to inform us on the following points:

First—Is the Southern Pacific Company prevented by any arrangements with the Fruit-Growers' Express and the Continental Fruit Express from permitting any competing line of refrigerator cars from entering California and competing for shipments of green fruit, and if not, will the company extend to one or more Eastern refrigerator lines the same facilities enjoyed by the existing lines for getting business in this territory?

Second—If the fruit-growers of California decide to establish an independent car line and perfect an organization for that purpose, will the Southern Pacific haul their cars and on what terms and conditions?

Third—Will the Southern Pacific supply a proper and sufficient equipment of ventilator cars?

Fourth—If the company has not a sufficient equipment of ventilator cars to meet the wants of the growers, will it build or convert cars for that purpose?

Fifth—If so, how soon will the company undertake to furnish the cars required?

Sixth—What is the Southern Pacific willing to do in the direction of inaugurating an expedited ventilator train service through Ogden or more easterly points?

Seventh—Will the company haul and give the same service and time to ventilator cars that has been given to refrigerator cars?

By answering these questions so that we may be able to present the facts in writing to the convention, you will confer a great favor on the fruit-growers of California.

Very respectfully,

R. D. STEPHENS,
Chairman.

The Railroad's Reply.

SAN FRANCISCO, May 20, 1899.

MR. R. D. STEPHENS, *Chairman of Committee on Transportation, Fruit-Growers' Association, Sacramento, Cal.:*

DEAR SIR: Answering your letter of the 18th instant, handed me by you in person, with oral explanations pertaining thereto, I beg to remind you that it has always been the desire of this company that the fruit of California producers reach Eastern markets at the least practicable cost, and it cannot be charged that this company was party to the introduction or development of the refrigerator plan of transportation, except in so far as we yielded to the representations and experience of the shippers and growers, accepting, as a matter of course, their verdict in favor of the refrigerator system.

For several years the fruit was moved in ventilated fruit-cars, built by the carriers especially for the traffic and furnished without expense to those who desired to load them. Shippers were not satisfied with the ventilated car, whether run on regular freight trains or in special fast fruit trains, and insisted that only under refrigeration could California's fruit be successfully placed in Eastern markets. Still, there were some who, in convention and in person, expressed themselves as certain that the transportation in ventilated cars could be made successful, and, in express compliance with these representations, this company added to its ventilator equipment seven hundred double-walled, paper-lined, ventilated fruit-cars, which embodied all the valuable points in construction and ventilating appliances developed by experience. These cars were, as always before, placed at shippers' disposal without charge, but the issue proved that the business for which they were built, in expectation of handling it, moved instead in refrigerators.

For this company it was a costly experiment, made in sincere effort to meet the views of the fruit-growers under promise in convention that the cars would be used. Our ventilator equipment so provided has consequently since been converted into box-cars, and there is no changed condition with respect to transportation in ventilated cars that would warrant the carriers in restoring at great expense the equipment which has failed to stand the test of experience and been discarded by the growers and shippers.

The present refrigerator system of transportation is one developed by the demands of the shippers. It began in 1888 with a call for refrigerators operated by a line that would undertake to handle the fruit through from point of shipment to destination under ice, and the initial refrigerator line in the traffic, started at the instance of growers upon the same general plan as at present in vogue, except that the charges for refrigeration at that time were from \$60 to \$120 per car higher than now. Owing to adverse reasons, financial or commercial, but with which this company was in no wise concerned, one refrigerator company after another dropped out of the traffic, this company from year to year aiming to furnish the refrigerator car, the utility of which was proved by its general use on the part of growers. Last year three lines of refrigerator cars were provided, but out of some 4,700 cars of fruit shipped all but a hundred or so

were loaded in Fruit-Growers' Express and Continental Fruit Express cars. This centralization of fruit in these two refrigerators caused us to follow the lead of the shippers and engage from the Fruit Express and Continental Fruit Express all the refrigerators needed for this traffic.

Our response to your first and second questions consequently is that we have contracted for all the refrigerator cars necessary for the deciduous-fruit traffic. Were we to accept special lines of refrigerators in endeavor to satisfy the various and often conflicting interests of those promoting individual car lines we would have so many refrigerators on the line and under such variety of auspices that serious confusion would develop, together with a multitude of cars for which there would be no loads. We have already had experience of this kind, and from the highly perishable nature of the traffic and large quantity to move must know in advance from what source cars are obtainable, having reasonable assurance of load, and of adequate facilities for icing and care of the refrigeration on the way to every destination, diversions in transit notwithstanding. Refrigeration is a matter of method and expense apart from the transportation; it involves foresight and organization, and arrangements which cannot be left to haphazard.

As to the remaining questions your letter recites, new ventilated cars could not be obtained at this late date, and we have none of the ventilated fruit-cars formerly in the service, except such as are necessary for our strictly local business. We cannot take them out of the local and put them into the through traffic, because in the through they would make two, possibly three, trips in the season, whereas in the local traffic they make many trips and are used continuously. To take them out of that service would cripple it unwarrantably to the injury of the California grower of fruits and vegetables desiring to have his product handled short distances in suitable cars, which to the grower is quite as important in its way as is the through movement.

I trust you will pardon the observation that this company's relation to the refrigerator lines is the same now as in previous seasons. The company has no interest in either line, and the cars engaged for the service are those which the shippers have designated by their use of them, the others being dropped merely because of non-use; hence we deprecate the present agitation because of its tendency needlessly to depress orchard values, in a year which otherwise affords every prospect of attracting to California fruit interests the favorable attention of the nation, giving the State a new impetus toward increased prosperity.

Very respectfully yours,

WM. SPROULE.

Upon motion, the report of the Committee on Transportation was received, with thanks to the committee.

DISCUSSION.

N. W. MOTHERAL. In Kings County we were ready to coöperate and hold up the price and quality of our products. We cannot go alone though, because you have got so many more pounds than we have; however, we have got enough to forever keep any other organization from being complete; but we are willing to coöperate with you. I have some few prunes of my own, but we have one of the finest and largest prune orchards in that county that there is in the State, and we produce a large quantity of fruit per acre. You claim that we do not make as good fruit as you have, but we do not believe that. We know one thing: we can make more pounds than you have. We cannot do anything by permanent organization unless we go with you, and we are perfectly willing to do that; but I do not believe you can get a green and dried fruit combination in one until you have done it step by step. It will take time.

PROF. CHILDS. We have attempted to form a Pacific Coast Cured Fruit Association, and have been working a long time in that direction. I have been one of the directors in that association, and we have spent a good deal of time trying to organize. We have copied the Raisin-Growers' contract with a few modifications. I shall present it to you in the morning. I believe that before we leave here we can organize. I know now from information we have from various parts of the State, that they are ready to join with us. We shall have with us to-morrow the men who have done so much to organize the raisin-growers of Fresno. I think we have a pretty good outline of the plan, and we have given it much attention for some weeks and I will present it to-morrow when we can discuss it.

PROF. FOWLER. I was through all of this matter pertaining to the raisin-growers' organization in Fresno County and was one of those who suffered from the conditions that prevailed—those conditions that brought the raisin-growers right to the Sheriff's office, and the Sheriff to their farms. I know some of the difficulties that occurred in the matter of organization, and I know that men do not like to organize until forced, because they have some sort of a reason for staying out. Mr. Stephens mentioned in his report some of the reasons for staying out of it. You cannot do anything with an organization until you get a large percentage of the growers so they can safely make the organization a success. The raisin-growers did not get to that point until the Sheriff and the banks forced them there. There was a mortgage upon nearly every raisin farm in the country; there were very few men without a mortgage in Fresno County; the result of it was, they saw that it came from a shortsighted business policy; through organization those men saw the light that was coming, as you men now see it in the prune business. There are men in this building who work along for years urging organization, but when you get together, organize as far as forty or fifty per cent. The raisin-growers could not get more than that; they could not get ninety per cent at the outset, which was what they thought they needed. They told them that they could not control the crop unless they had more than seventy-five per cent of the product that was produced. So year after year passed by until we got right at the place where the Sheriff was at the door. The banks would not lend any more money; they said, if you don't come into these organizations, we will not lend you any more money, and the growers all came in and they made it a success. I was in the office of the treasurer of the association down there the other day, and Mr. White informed me that they passed over two millions of dollars to the growers of raisins, and that has paid these men well for the labor. What is the result? You cannot hire a piece of raisin land to-day—land that went begging a few years ago. The growers are taking better care of the vineyards now. The real estate has improved, and Fresno has commenced a new growth.

There are no houses to rent there, and business firms have something to do. As stated by the reports, this year France has only produced about 25,000,000 pounds of prunes; last year, she produced about 85,000,000 pounds, but she has produced crops larger than that. In this State, we have got a larger crop than ever before, but it is not a phenomenal crop by any means. You will wonder why there is not a sale for prunes; but that is the condition. The only way to solve this proposition is by organization. Petty jealousies between districts and men must be laid aside, and you must organize for the benefit of business. It is going to take labor and a good deal of patience and much judgment and magnificent management at the head of it all; but then, it can be done. I am hopeful, because it is my pleasure to go from one section of the State to another, and I notice in the fruit sections that all the men say, "We want to organize." Why can't we have organizations so that one district may support another. Then this business will build up. This is the grandest fruit country on the face of the earth, and growers should lay aside all small questions and unite for the benefit of the dried fruit industry of this State, and you can have success as it never has been in any other portion of the globe.

MR. SPRAGUE. I trust this discussion will take a wide latitude, and not be too easily dazzled by brilliant successes which have attended the Raisin-Growers' Association. It may be that there are very great differences between the raisin and the prune industry as to the distribution of the growing crop throughout the whole coast. It may be that there are other very great conditions which will make it difficult for us to succeed on the same lines as the raisin-growers. We may not be quite satisfied to risk the failure of the whole to secure just this particular form of organization. I desire that we should exercise caution in considering the subject; my own experience in the matter of organizations teaches me and convinces me that every form of organization which lives is of advantage to those who organize and compose it. That has been the history of organization in this State. But we must advance step by step, making it more powerful each day, until it arrives at the topmost utility. If we cannot do it all at once, let us do what we can; let us consider this matter beyond the limits of the raisin-growers' organization.

PROF. CHILDS. This question of coöperation is a question of education, and if there is any place on earth where we should have the advantages of coöperation, it is in the Santa Clara Valley, where we are going to increase our crops, and which I believe to be the prettiest spot on the face of the earth; but we need a great deal of education here, and we were very anxious to have this convention here for that purpose. I have been at different meetings in the southern part of the State since it became a fruit country, and I was there when it was a desert region, and

it was a dead community; at that time, we were away ahead of it. When we are organized thoroughly here, our lands will increase in value and our country in population. We can get money for five and six per cent. That shows progress. While I brag about this valley, I cannot brag as much about our business men, and the other day it was suggested to me by one of them who possesses a great amount of energy that we should get some of them together, and take them down to Los Angeles or up to Seattle, along the coast, on an excursion and let them see how they do business and acquaint them with the energetic methods of the business men of those places.

JOHN MARKLEY. I agree upon the advantages that come by organization. I was once connected with the California Fruit Exchange. At that time, we did not all agree as to what should be done or as to how it should be done. I did not agree with all of the management. My idea was then that we should be organized in separate and distinct organizations—a distinct organization for the prune men, another for the peach men, and another for the raisin men, without regard to any headquarters; but I will accept now any plan of organization that possesses good business methods. I do not believe that you can get too strong or too well posted a man at the head of it. I believe we should have a ten thousand dollar man if he has got a ten thousand dollar ability, and I think it would take a ten thousand dollar man to organize the prune men of Santa Clara. When we do get to the organization, we ought to organize right; we ought to get down to the bottom of it. I think we ought to get a list of the fruit-growers of the State and what they own and grow, and then we can organize a permanent organization. We could then say that we own this land, and that we have the ability to sell the products of it, but we should not go to a man who has not got a tree or an acre of land. As matters now stand, somebody who has no interest in land, or who don't own any fruit, fixes the prices for us. I hope the fruit men will get together before we leave here and devise some plan by which the prune men of the State can be brought here at any time and unite with these people, and if there is any such organization as suits us, we will accept it; and put strong men at the head of it—men who can go to the banks and get money if they want it, because money is a strong feature. I think this can be done. I travel all over the State of California, and have been in many places recently, and consider myself pretty well acquainted with the fruit industry, and the outlook for it. Some two or three years ago, I was in Fresno, and it was awfully dull, owing to the unorganized condition of the raisin-growers and the poor methods used by them at that time. I know of my own observation and my own individual knowledge that it was largely the Sheriff and banker that organized those people. Recently, I heard a man in Fresno say that he could sell his vineyard for \$250 an acre, and

said he could get the money for it, and I have heard people in Fresno kicking about the cost of organization. This same man who stated that his land was now worth \$250 an acre was kicking about the cost of organization. He said Mr. Kearney got \$500 a month, and I said I think he is worth \$5,000 a month if he can organize fellows like you are. In the last six months I have seen, in many counties where prunes are raised, men who offered to cooperate, and I think it would be a good plan to get a list of those prune men and of the possible amount they can produce. Some of them told me that they would come to the convention and talk the matter over. I think it is better that all sections of the country should know what is being done here, and that we should get a representative from every county at a convention to be held here later, and then the representatives of those different counties could go back to their homes with the necessary papers for the growers to sign. I trust we will get together and take some action in that behalf.

MR. GORDON. It is a mistake to hire cheap men in an institution of the kind we propose. We pay our president \$500 a month, and there are a good many small, narrow, contracted men kicking at that salary. A man said the other day, who was not in the association, "Look at the salary you are paying Kearney—\$500 a month." I said, "My dear sir, you have forty or fifty acres of raisins there, and the association has been worth forty or fifty thousand dollars to you in the last year or so. That salary that we pay Mr. Kearney costs about ten cents an acre to the raisin-growers of Fresno County." And I told this man that it was just such men as he who are ruining this country and sending it to destruction. It don't make any odds whether you pay \$500 a month or \$1,000, if you get the right man in the right place, and I don't believe you will find any more trouble in handling the prune organization than we have found in handling our raisin organization. I once felt as though I was opposed to organization, believing that I could conduct my own business, but I soon learned that I could not do it. I grew raisins when they were worth 5 cents and when prunes were worth 12 cents. We have now an organization of raisin-growers in Fresno County, and prunes are worth 2½ cents and raisins are worth 7 and 8 cents. Before we organized in Fresno, there were thousands of tons of raisins sold right in Fresno County for \$5 a ton less than ground barley was selling for. Barley sold for \$30. This was on account of disorganization. Since we organized, and had one management and guaranteed the trade certain prices, raisins have gone up to \$100 a ton, and barley has gone down to \$15. Now, regarding the prune industry, if I understand the situation, it will not be for long that you can get 2½ cents, because the area is increasing, and you will see that prunes will go down unless you organize, and you will be where the raisin-growers were a few years ago.

Recess until to-morrow at 9:30 A. M.

SECOND DAY—WEDNESDAY.

DECEMBER 13TH, 1899.

TOPICS FOR THE DAY: *Establishing a Free Public Market for the Sale of Perishable Products;*
Organization and Coöperation among Producers;
Foreign Competition.

At 9:30 A. M., President COOPER called the convention to order.

THE FREE PUBLIC MARKET PROJECT.

EDWARD F. ADAMS, of Wrights, submitted the following report on establishing a free public market for the sale of perishable products, etc.:

MR. PRESIDENT, LADIES AND GENTLEMEN: In the autumn of 1895 a commission firm in San Francisco cheated a widow of Santa Cruz County out of 15 cents on a box of grapes, and the widow kicked. When reproached for its act, the firm set up in defense that it was the custom of the trade; it said they all did it. When the young man—a son of the widow—inquired of certain firms to which he was referred by the offending salesman, the statement was confirmed. The young man was informed that the proceeding was perfectly regular, and some surprise was indicated that any fruit-grower—and especially a widow—should attempt to kick up a disturbance about a little thing like that. Out of that transaction grew the great free market controversy.

This widow of Santa Cruz County was plucky, and, considering that an insignificant transaction, in which the facts could be definitely proven, brought up all the essential facts in an important matter, would have been disposed to tackle any single firm in the business, but when it came to a fight with the entire commission trade she considered herself outclassed, and therefore appealed to the local Grange of which she—and, as it happened, myself—was a member. The Grange did not feel quite sure of itself, but, trusting in the Lord, put a stone in its sling and went out to meet Goliath. It was a pretty fight, but the Grange catapult lacked power; it biffed the giant good, but did not fetch him. The Lord seemed to be on the side of the heavy artillery. The press of the State, however, took up the question and freely agitated it; in due time a mass convention was called by the State Board of Horticulture, which met in San Francisco, on April 6, 1895. Subsequently another mass convention was duly called, this time at the suggestion of the Board of State Harbor Commissioners, and met in San Francisco, February 23, 1898. Both these conventions, after thorough discussion, adopted certain definite instructions to the committees which they created to take charge of the movement. The resolutions of the two conventions were identical in principle and corresponded substantially with the propositions originally laid down by Highland Grange. I was the chairman of the committee originally appointed by Highland Grange to take up the case of the widow, and have also been chairman of the committees appointed by the conventions, and as such am in a position to say, and do say, that not one movement has been made in the matter by any one purporting to favor the Free Market except in literal compliance with the instructions of large conventions of producers. For whatever has been done, therefore, the producers of the State, as represented in almost every organized body of them, are directly responsible, and not any individual. The producers of the State have used every effort possible to obtain the Free Market in

San Francisco, short of putting up the money to pay the cost of educating the people. There they draw the line. It is evidently their opinion that a free market is a market which does not cost them anything. Largely as a result of the first convention the law now on our statute book was enacted and approved on March 29, 1897. The second convention was called to devise some means for compelling the Governor and Harbor Commissioners to comply with the law. It has never been found possible. They have absolutely refused to execute a word of it. If the producers of the State had even as much as the spirit of an Angora goat they would raise the money and attack the Commissioners by mandamus proceedings or for malfeasance in office. But they haven't.

The facts about the Free Market are these: Perishable products arriving in San Francisco by water—comprising about two thirds of such products reaching that market—are and have been for years sold upon the waterfront, either by producers or commission men, without charge for space. Any one can see that Free Market going on any day in the year. I am informed that from two thirds to three fourths of the perishables arriving by water are now sold on this Free Market provided by the State. This market is totally unregulated; the business is carried on in great confusion and with great inconvenience to all parties. The methods in vogue offer excellent opportunities for fraudulent practices on the part of commission men, which are unquestionably improved by some of them.

On the other side of East Street and a short distance from the wharves where the bulk of this produce is delivered and sold, are several fractional blocks of land which are the property of the State. They are partly occupied by railroad tracks, but mainly by the repair shops of the Pacific Coast Steamship Company, and by the coal yard of a coal company in which the Steamship Company or its officers are interested, or at any rate which is managed by the agents of the Steamship Company—Messrs. Goodall, Perkins & Co. It is all one concern in some way; I don't know how.

The instructions of the two conventions to their committees were to induce the Harbor Commission to remove the coal yard and repair shops of the Steamship Company from these blocks of State property and extend railroad tracks and sheds over the whole, upon the condition that the railroads should make those blocks the regular terminal for perishable products arriving in the city, which would then be mainly sold in the sheds on the blocks, just as the perishables arriving by water are already sold in the sheds over the wharves where they are delivered. It was then proposed that there should be official supervision over the sales both on the blocks and on the wharves, under such regulations as would reduce the possibility of fraud to a minimum; permit convenient and effective inspection to be made; allow accurate records to be kept of market conditions, available after six o'clock each day to shippers, and generally put the marketing of perishable products in San Francisco on a sound, businesslike, common-sense basis. Regulations intended to accomplish this end were drafted by the producers' committee and were adopted verbatim by the Board of State Harbor Commissioners and have been printed at the expense of the harbor fund. They can be seen by the curious at any time. They are all that exists of the Free Market. They are not enforced even upon the wharves.

The advantage from all this, common to all producers, was the "regulation" of the market, surrounding transactions with all possible safeguards against fraud by producers or salesmen, and furnishing immediate and daily information of the state of the market for the guidance of intending shippers.

Against this there would be to the shippers by river and bay the disadvantage that whereas they now have in the San Francisco market a very great advantage over shippers by rail, in that they have earlier delivery to the best place for selling in the city, with no drayage charges or transportation of tender fruit over rough cobblestones, and with such a concentration of products at one center as insures the largest concourse of buyers, if the law now on the statute books were enforced they would be deprived of this advantage of position over the shippers by rail, but all would be on an equality. The majority of actual shippers by water do not converse fluently in the American language nor habitually subscribe to the "Melican" papers, and probably never heard of the Free Market. The large land-owners understand the situation perfectly, and while some of them profess to favor the Free Market, and none of them say anything against it, they have never been known to sit up nights devising means for putting it through.

They all certainly recognize the value of regulation and information, and as good citizens must favor good government and square dealing.

The special advantage to the shippers by rail, comprising the producers of about one third of the total perishables, and probably more than one half of the more tender fruits, would be:

1. Equal advantage of location as compared with shippers by water.
2. Equal participation in the competition of buyers who principally congregate at the Free Market on the wharves where the bulk of the product is now sold.
3. Delivery averaging probably two hours earlier than now.
4. Avoidance of injury to tender fruits by bounding over the rough cobblestone pavements of San Francisco, which must be seen to be appreciated.
5. The saving, upon the basis of an arithmetical computation on the basis of the perishables delivered by rail in San Francisco in 1896, at the rates usually charged for drayage in that city, of over \$80,000 per annum, less drayage on whatever residue might not be actually disposed of in the market and so be hauled to commission houses or storage. This cash saving of course will increase with growth of population and trade.

The law of the State and the "Regulations of the Free Market," duly adopted by the Board of State Harbor Commissioners, require all these things to be done. As a matter of fact none of them are done.

The attempt to carry out this program brings us athwart three important interests:

1. The railroads, which meant at first only the Southern Pacific Company, but now means both them and the Santa Fe so far as the latter brings perishables to the city. No conference has ever been had with the Santa Fe officials. If all other perishables are delivered to the Free Market the Santa Fe will only be too anxious to deliver theirs also. The first step taken by the producers' committee was to ask whether or not the Southern Pacific Company would make the Free Market its regular terminal for perishables. The answer was yes, upon two conditions, which were: first, that they should be at liberty to load cars there, in which perishables had been delivered; and, second, that they should be at liberty to use the tracks and sheds for the delivery of general merchandise at seasons when the room was not required for the delivery of perishables. Otherwise not, as the delivery of perishables at that point would, of itself and without some compensating advantage, be a serious expense which the company would refuse to assume. It happens that there is no possible objection to either of these things, but on the contrary they are earnestly desired by the wholesale merchants of San Francisco, who had, in writing, as individuals, and by their Chamber of Commerce, petitioned for it, before the Free Market agitation began. The producers' committee, therefore, agreed that, so far as they could control matters, it was a "whack," and the agitation has proceeded upon the understanding between the committee and the Southern Pacific Company that perishables should be delivered to the Free Market as a regular terminal upon the conditions stated. They certainly will never be delivered there without extra charge on any other conditions.

Between the company and the committee, however, there is one point which remains unsettled, because neither party has ever been ready to bring it to an issue. The blocks upon which it is proposed that the State shall extend its railroad tracks for the use of the Free Market, now pay the State rent aggregating \$600 per month, which is much less than they are worth—or \$7,200 per annum. It was the secret intention of the committee that the railroad tracks used for this delivery of perishables and other merchandise should yield a rent, to be paid by the companies using them, equal to that now received from the steamship company. It was the secret intention of the railroad company to get the use of the tracks, at least for perishables, without rent, their claim being that the use of the tracks rent free would be no more than an offset for the extra cost of delivering cars there, as compared with the cost of delivering them at King' and Townsend Streets, a mile and a half away. The committee did not force this issue in 1896, when these discussions were had, because they were of the opinion that if forced at that time the company would buck, and have nothing further to do with the matter, because, so far as the committee could see, it was about a toss up with the railroad which way it went. Since that time conditions have so changed that I am personally of the opinion that the railroad will pay the \$7,200 per year rent, rather than not have it go. I may be mistaken. There will certainly be a hard fight before the Harbor

Commission before it is settled. If the railroads do not pay it the Harbor Commissioners must increase the tolls on perishables to cover it, as the Harbor needs the rentals. If it were taxed, in tolls on the perishables, it would be about 3 cents per ton, which I, for one, would rather pay than lose the market. It would amount, for me, to about 15 cents a year. I think it good business anyway to pay \$7,200 a year to have the railroad deliver the stuff rather than to pay \$80,000 a year to have draymen bump it over cobblestones. But I am in favor of making the railroads pay it, and I think they will. It is the one unsettled point between the railroads and the committee. Both are taking their chances. It is my understanding that the Southern Pacific Company now strongly favors the Free Market and is willing to take its chance on having to pay rent for track room, and that an alliance, said by their enemies to be unholy, exists between the producers of perishables, the wholesale merchants of San Francisco, and the Southern Pacific Company to bring it about.

The next interest to be dealt with was the commission merchants. They did not want a free chance to sell produce on State property if they were going to be watched. They would rather pay rent and be allowed to deal with widows and others in their own way. They have always opposed the movement all they could, but their opposition has never amounted to anything. In fact, it has helped rather than hindered. It is fair, however, to state their grounds of opposition. These were:

1. Adams wanted to be superintendent of the market. This was mortifying to me, for I had thought myself of Harbor Commissioner caliber at least, but I consoled myself with reflecting that whoever tried to serve the public must expect to endure mortification.

2. That Adams was in the employ of the "railroad." There was nothing mortifying about that, for the railroad is said to be good pay, which is more than can be said of my employers of record, the mass convention of producers. No other grounds of opposition were ever set up by the commission merchants.

But the trouble was this didn't seem to prove much. There was no allegation that I should not make a good superintendent if I wanted to get up at two o'clock every morning and go down to the wharf for the sake of a petty office, or that the railroad was not contributing to a worthy object if it was paying me to help the producers get what they said they wanted. It was, therefore, unnecessary to deny either of these things, and as the commission merchants rested their case there their argument gave no trouble. Their actual fighting consisted in getting one or two trade journals to intimate or allege the above-mentioned things about me, and to send one or two of their number to the proprietor of a journal for which I sometimes write, to induce him to fire me on those grounds. One man, not a commission merchant, was silly enough to write a letter warning the newspaper man against me. He wrote from this city and is probably here to-day. These things contributed somewhat to the joy of the newspaper office, but otherwise it did not count. The commission men monkeyed in a feeble way with one or two members of the Legislature, who told us they might have to go out doors when Free Market matters were up, as they might lose a vote or two next time if they voted for us, and they did not want to vote against us. They went out all right. They or somebody else got a lawyer to appear before legislative committees against us. He said his aunt, or grandmother, or somebody had an interest in some river land, and he appeared for her. Maybe he did, but nobody believed it. The fresh fruit commission merchants are rather a trifling lot and their opposition harms nobody.

The draying interests were against the Free Market, and include some influential men who doubtless exerted their pull against us, but I never knew of it.

The interests which have really thus far prevented the execution of the law are represented by Messrs. Goodall, Perkins & Co. To that concern and no other influence is due the fact that the shippers of perishables by rail are denied equal privileges on the waterfront with shippers by water. The reason is, that they do not wish to remove their repair shops and coal yard; and thus far they have succeeded in making the shippers by rail pay \$80,000 a year in order that they may save the cost of moving and doubtless paying a higher rental. There are many places which will accommodate them; there is no place except the State blocks which they occupy where there can be a Free Market for the shippers of perishable products by rail.

The bill introduced in the Legislature of 1897 had no promotion, or next to none. It

was introduced and left to take its chances, because there was no money to pay the expenses of any one to go to Sacramento, and no one would go and pay his own expenses. Milton S. Green, then representing Goodall, Perkins & Co. at Sacramento, as he himself told me, got the bill amended in committee so as to make it a little obscure and, as he thought, to keep his people from being moved off the blocks which they were occupying. He did not succeed in killing the bill, nor did he, in fact, materially injure it, for it cannot be put into execution at all except by taking the blocks in question.

I have no reason to suppose that Senator Perkins has ever taken part in the contest; in fact, I am of the opinion that if I had the least confidence in my backing, or if he had reason to have any such confidence, I could sit down with him and in an hour, by a fair method of give and take, remove the opposition of that firm; but so long as neither he nor I have any confidence that the people who asked the members of our committee to represent them in this matter, would take the least trouble in the world to sustain us, such a conference would be a roaring farce, in which neither the Senator nor myself would engage. It is essential to a trade that both parties have something to deliver. The fighting has been done by the Senator's wicked partners. Captain Goodall, who directed the fight, is dead, and my lips are sealed as to the methods employed. The most influential agents employed, as I was informed by members of the Legislature, and believe, were the chairman and secretary of the Republican State Central Committee, who were maintaining party headquarters in Sacramento. The last fight took place over a bill introduced in the last Legislature to compel the Board of State Harbor Commissioners to carry out the law of 1897. The bill was introduced in the House of Representatives by Hon. George G. Radcliffe, of Santa Cruz County, a Republican, and passed with but two dissenting votes. In the Senate it was introduced by Hon. B. F. Langford, of San Joaquin County, a Democrat, but failed in that house on final passage, although at one stage or another it received the votes of more than enough Senators to enact it into law. Had that bill passed it would have been impossible for the Board of State Harbor Commissioners to avoid doing what it is equally their duty to do now, and before any law was enacted. Before the law was enacted, however, it was wholly within the discretion of the Harbor Commissioners. Now it is not. When they delay to execute a plain law they violate their oath of office.

The bill before the last Legislature had promotion as follows: W. L. Overheiser, of Stockton, a Past Master of the State Grange, spent two or three weeks in Sacramento in the interest of the bill. His expenses, amounting to not quite \$50, were paid by the State Grange of California. I visited Sacramento three times to appear before committees. My expenses, except transportation, which I procured from the railroad company, were paid by myself. I presume the bill had promotion from the representatives of the Southern Pacific Company, but I know nothing about it, for I never saw a political manager or agent of that company to know him as such in my life.

The records of the committee of producers show the vote of every member of the Legislature on the bill at all times when the roll was called. The same, of course, can be found in the journals of the houses.

The shippers of perishable products by rail, and also, I should add, those who ship by the Pacific Coast Steamship Company, and who now pay \$80,000 a year for unnecessary drayage, can have the Free Market established beyond peradventure by simply pledging the candidates for the Legislature, of all parties—for it is of course not a party question—when they come up for nomination next summer. The proper education of the people, including, especially, new members of the Legislature, requires a small expenditure for printing and postage; and another small sum, probably \$200 or \$250, is required to pay the expenses of an open and avowed agent of the producers during the session of the Legislature to expose lies. I will undertake to find a good man for \$5 a day, and he pay his own expenses. No, I don't mean myself. I won't go at any price. I suppose \$500 judiciously expended would assure the market. There simply needs the evidence which such an expenditure, with the interrogation of candidates, would give, that the producers of perishable products demand justice for themselves and the equal execution of the laws. If the producers prefer to pay \$80,000 a year for ever and ever rather than to pay once for all a few hundred dollars to explain their case to the general public and so get relief, it is a curious social fact, but otherwise of no interest to me.

There is some evidence that this is so. The last State Fruit-Growers' Convention, upon a full representation of the facts, and a full discussion and understanding thereof, passed strong resolutions in favor of establishing the market, including one to raise a little money then and there for promoting that end. The resolutions, if I remember, passed unanimously, but when the time came to raise money I was told by Professor Fowler—for I was not present—that the crowd nearly smashed the doors down in its struggles to get out. I did not doubt it, for I had seen conventions do that very thing before.

For myself, I have served the public in this matter because various conventions of producers have asked me to. I did it cheerfully, faithfully, and to the best of my ability. The pleasure of so doing cost me \$50 or \$60 a year in expenses for some years, but I have had a lot of fun out of it and no worry and am perfectly satisfied. But I have had all the fun I want, and if the growers wish to be represented further they must get some one else. As a fruit-grower my interests in the matter are insignificant, and no possible gain during my expectation of life would pay my expenses in the matter for a single year. As a citizen of California, I am heartily in favor of all that tends to square dealing and good government, and shall always, I trust, be ready to be helpful in public measures to that end. Except from such motives I don't care a rap whether there is ever a Free Market or not, and never did.

Vote of Thanks.

PROF. CHILDS. I move that the Committee on the Free Market be discharged* and the thanks of this convention be tendered to Mr. Adams for his efforts, and that a committee of three be appointed to examine the paper and bring the salient points before the convention.

Motion carried.

Appointment of Committee.

The Chair appointed Wm. Johnston, Edward Berwick, and Will A. Coulter on said committee.

CO-OPERATION IN MARKETING PACIFIC COAST DRIED FRUIT.

ADDRESS BY PROF. C. W. CHILDS, OF SAN JOSÉ.

LADIES AND GENTLEMEN: President McKinley, in his annual message, says that "Combinations of capital organized into trusts to control the conditions of trade among our citizens, to stifle competition, limit production, and determine the prices of products used and consumed by the people, are justly provoking public discussion and should early claim the attention of Congress."

The recent United States Supreme Court's decision in the pipe-makers' case indicates what verdicts may be expected from the courts against the bad features of trusts. No economic tendency is at present receiving so much attention from our political economists as is the unmistakable drift toward concentration of capital in corporate bodies, commonly

*An inadvertence: the committee being the creation of a distinct body, the report was made by request.

known as trusts. All of these writers find good and bad features in these various trusts.

The horticulturists of California have been forming combinations for mutual profit and protection, and they have tried to eliminate the bad features which prevail in such corporations as the Standard Oil Trust. These fruit corporations have generally been of great public value, as they are working in the interest of producer, consumer, and merchant by lessening some of the expenses and decreasing some of the friction that are usually incident to individual competition.

I shall endeavor to explain why we are attempting to form a Pacific Coast Fruit Association to handle all the cured prunes, apricots, and peaches on this Coast. This is a very ambitious scheme, as deciduous fruits are produced in patches of country scattered throughout the region from Arizona to British Columbia, and from the Rocky Mountains to the Pacific Ocean; however, Northern California, Oregon, and Washington produce about seven eighths of this fruit. The principal markets for these products are far away, and transportation facilities are very unsatisfactory. At present a great majority of the fruit-growers try to sell their crops as early as possible for cash, fruit delivered f. o. b.; some consign to Eastern dealers. This indiscriminate competition of individual growers has made the market price of cured fruit so fluctuating and uncertain that many dealers in this product, both in California and in the East, have lost heavily. In Santa Clara County eighty per cent of the fruit-dealers, outside of the "Association," have become bankrupt. For various reasons, well known to the orchardists, the cost of producing cured fruit is greater now than it was five years ago, while the price of cured fruit has steadily declined, so that at the present time orchardizing is unprofitable in many localities.

Fruit-raising is the most important producing interest in Santa Clara Valley, and much of the best land is now planted in fruit trees. Of late years we have planted mortgages quite as rapidly as trees and much more effectively. With the decline in prices of cured fruit real estate has decreased in value, probably fifty per cent within five years, and yet we are told that we are too prosperous to fully realize the great necessity of coöperative effort in handling our cured products.

During the decade just closing—1890 to 1900—several coöperative associations have been formed in Santa Clara Valley. Some of these, the West Side, Campbell, Berryessa, Willows, and East Side, dry, pack, and market the fruit of their stockholders; while the others, known as the Santa Clara County Fruit Exchange and the Santa Clara County Fruit Union, receive the cured product, grade, pack, and sell it. In order to lessen the cost of handling cured fruit and to limit the evils of home competition, negotiations, begun in 1894, resulted in the establishment in 1895 of a common agency, known as the California Fruit Agency,

through which the Exchange, Campbell, West Side, and East Side organizations have since that time made their sales. The spirit of distrust, which is the farmer's devil, cast its malign influence over the other organizations, and also over the individual fruit-growers throughout the valley, and the agency failed to accomplish its full measure of success.

These associations, though not realizing the hopes of their founders, have been of great value to all the fruit-growers in this valley. Many, through selfish motives, have kept out of these associations, and thus have injured themselves as well as those who paid for coöperative work. The associations will market this year about one fifth of the cured prunes produced in this county. It would seem from this statement that four fifths of the prune-growers in Santa Clara County are still enjoying all the profits and the pleasures that pertain to single blessedness.

We are also confronted with the condition of over-production, or, perhaps, better stated as under-consumption. Last year the people of the United States consumed about 75,000,000 pounds of cured prunes, and we shipped to foreign countries about 10,000,000 pounds. Under favorable circumstances Santa Clara County will produce about 100,000,000 pounds of cured prunes next year, and the rest of the Pacific Coast about the same amount. Evidently we must induce the people of the United States to eat more prunes, and we must also expand the foreign market for the same, or we must lessen the production of this fruit. What shall we do to be saved from bankruptcy?

As it seems to be impossible to induce more than one seventh of the prune-growers in this county to sell through the Dried Fruit Agency, and as it is necessary to form a combination of at least seventy-five per cent of the prune-growers on this Coast, in order to fix a minimum price and to regulate the distribution of cured prunes, an attempt is now being made to form a combination of fruit-growers upon a broader basis than that of any existing fruit organization. This combination will be known as the Pacific Coast Fruit Association, and it proposes to grade, pack, inspect, and market all the cured prunes, and possibly all the cured peaches and apricots produced on this Coast. This association is modeled upon the plan of the Raisin-Growers' Association, and the contract which the prune-growers must sign is, in the main, a copy of the raisin-growers' contract. This document has been prepared by legal experts, who have tried to draught a contract that would be acceptable to all parties and legally invulnerable. The following is a short analysis of its principal clauses:

1. The grower, in consideration of certain promises made by the association, agrees to transfer to the association an undivided one twentieth interest in the prune crop grown on his land A. D. 1900.

2. The grower promises to pick and cure said prunes at his own expense and deliver them to some packing-house, which he may select, but said packing-house must be approved by the association. The grower also agrees that his fruit may be mingled and sold with other fruits of like grade and quality.

3. The association, in consideration of such transfer of prunes, agrees to inspect, grade, pack, and sell the whole crop, under its own trade-mark and guarantee of grade and quality, as speedily as possible, and at a rate not lower than the minimum price fixed by the association.

4. The association also agrees to store said prunes, or cause the same to be stored, in proper warehouses, and to insure them; to employ all necessary managers, inspectors, agents, and other employés; to give each grower a warehouse receipt for his prunes, which receipt shall state that said prunes are held subject to the terms of agreement; that the proceeds thereof will be paid to the grower, or his assigns, on the return of such receipt, and that said receipt may be assigned by indorsement thereon, subject to the conditions of this contract; that the whole of said fruit shall be accounted for and the net proceeds paid to the grower or his assigns, payments being made from time to time, as the proceeds of sales are received.

5. It is specially agreed that all expenses incurred for inspecting, grading, packing, insuring, storing, selling, and salaries of employés shall be paid by the grower out of the proceeds of sales.

6. If at any time there shall be a controversy between the grower or his assigns and the association, either party, on complaint to the board of directors, may have the same submitted to a board of three arbitrators, one to be selected by the grower, one by the board of directors, and the third to be selected by the two so chosen; and the controversy must be adjusted by this arbitration board. The award must be made in writing, and shall be final.

The association proposes to transact its business with and through the existing channels of trade; consequently, the various unions, associations, and packing-houses now dealing in cured fruit will sign a packers' contract, similar to the growers', and proceed with their business.

Provisions may be made in the by-laws for limiting the liabilities of stockholders, electing the directors, requiring the officers to give proper bonds, and for other safeguards and necessities.

The founders of the Pacific Coast Fruit Association hope and believe that this organization will be of great value to producer, packer, and consumer. By fixing a minimum price for cured fruit the speculative element in buying and selling fruit will be eliminated and this business put upon a stable foundation. Eastern and foreign merchants will then buy earlier in the season and keep a larger stock in store. If protected by an established association price, which cannot be lowered during the

year, these dealers will make especial efforts to increase their sales of cured fruit. By having under one control all, or nearly all, of the cured fruit on this Coast, a more economical and a much more systematic plan of advertising would be inaugurated by the producers. Agents could be employed in every Eastern State and in foreign countries to distribute fruit in small packages, to teach people how to cook it, and thus assist in creating a taste and desire for our cured fruit. Granges and farmers' clubs could be induced to handle a large amount of fruit. Through these various agencies, properly directed as they would be by the association, the consumption of cured fruit could be quadrupled in a very short time. The board of directors would employ a first-class business man as general manager. He would cause the fruit to be distributed in such a manner as not to glut any market and yet keep all fully supplied. He could obtain the cheapest possible rates of transportation, and he would probably be able to have the present unequal, unfair rebates abolished. As another result of the concentration of fruit, the manager, or the individual grower, could readily obtain money to carry on business at a very low rate of interest, probably at six per cent or even less. The manager would undoubtedly have every facility at his command for obtaining just such accurate information as is needed in managing the fruit business. Frequent consular reports would be at his service, for he would be the representative of a great and influential body of people. We now have each year a large amount of small and usually defective prunes, which ought not to be put upon the market as cured fruit. All prunes which are graded above one hundred to the pound, and perhaps all above ninety to the pound, ought to be treated as a by-product. If all of this defective fruit is controlled by this association, it may be crushed, pressed into blocks, and used for hog feed, for which purpose it is worth, at least, a cent a pound. Other ways and means will be devised for utilizing all fruit products that are now wasted or sold at a loss.

In short, if this association is organized, it means to the producer less friction, less worry, less expense, and greater profits; to the consumer, cheaper and better fruit; to the packer, a larger and more satisfactory business. Shall we organize? Not while the senseless notion prevails that a price may be fixed for our fruit and a market found for all of it, by getting the grower to sign an agreement not to sell fruit below a certain price, and then allow him to handle and sell it himself.

In closing I quote a paragraph from the "Modern Farmer," by E. F. Adams:

"As these pages are being printed, there is in progress a more ambitious coöperative effort than I have known of elsewhere, in connection with marketing. This is nothing less than the organization of a Pacific Coast Prune Association, whose object is to combine under one head all

the cured fruit societies now existing, and all individuals engaged in the production of prunes on the Pacific Coast. The organization is similar to the Raisin Association, and includes similar contracts with the private packers, who are understood to be favorable to it, and without whose coöperation it could not at present succeed. Whether it can succeed with their aid is quite doubtful, as the prune-growers are widely scattered over a large area, and it will be contrary to all experience if they can be induced to sign the necessary contracts without a long and expensive canvass. So far as California is concerned, whose people are coming to be fairly well educated in coöperation, this proposal is not visionary, although it may not succeed. It will be strange if the people of Oregon, Washington, and Idaho shall be found willing, without previous instruction or experience in coöperation, to at once proceed to the exercise of this highest development of the art."

ADVANTAGES OF ORGANIZATION AND CO-OPERATION.

BY A. H. NAFTZGER, OF LOS ANGELES.

MR. PRESIDENT, LADIES AND GENTLEMEN: If we get the sentiment of this meeting as it developed in the discussion yesterday, and the interest manifested this morning, we are ready, not so much to argue the question, as to undertake to carry into effect the propositions that have been stated and the conclusions that are before you. However, I assume that you will not count it out of order if I traverse some of the questions, even, that have already been touched upon since the opening of this question. So much has been said upon the subject of the advantages of organization that nothing more than a general statement can possibly be necessary along this line. There are, however, some very salient points; there are some advantages that ought to appeal to the man whose business interests are involved in fruit-growing, and I propose as hurriedly as possible to touch upon a few of these. Something has been said already about the preparation or curing of fruit. It is my opinion that nothing will be more conducive to uniformity of grade and high class of growing and preparation than an organization that will disseminate the proper methods. We have found in organizations to which I happen to belong that we can introduce and bring into practice methods of careful handling, grading, and packing through an organization as it cannot and will not be done under any other method, and that goods are well packed and crated and marketed with satisfaction. The next item is that of economy. Business organization will introduce economy and will make a saving; you will buy your supplies for less money. I shall say something about supplies later on. In buying your supplies in large quantities,

you will buy them, as you very well understand, for much less money. It is too well known for me to state here, that a large business can be conducted at a much less percentage of cost than a small one, and consequently, by uniting, these large interests will introduce economy at every stage of the business. Two or three days ago I met a gentleman whom I had known for several years; I had not met him for several months, and I said, "How does the battle go with you?" And he said, "First rate." He said he had been up north in the raisin business, and told me he had some certain percentage of the crops to handle, and that his profit was about \$75 a car. I am not saying anything against the raisin organization, for I think it is an important factor, and that it has made wonderful strides in the right direction, but I wondered why when yesterday some gentleman from Fresno was talking about the benefits of the raisin association, and how they were able to borrow money, and so forth, I wondered why they did not get that \$75 a car and not borrow money at all for the ranch. If the other man had \$75 a car profit to lose, why didn't the grower get that \$75. I will show you that the association can do business cheaper than any one else in the business, because of the volume of its business. I will say something about that later on.

As to our own business, as I am asked to speak on the subject of citrus fruits, I will say this to you: At this juncture, it costs us to operate, everything included, all of the expenses, all telegrams, all agencies, and auction expenses, and everything pertaining to the marketing of the fruit, on an average of three per cent on the gross earnings. Before we began operating in the orange business, the price for packing was never less than 35 cents a box, and usually from 40 to 50 cents. The percentage for handling the business was never less than ten on the gross sold. We have reduced it so that it is from 24 to 28 cents a box better than before, and the total cost of marketing is about three per cent on the gross sold as against ten per cent. This is simply because we have a large business, and the benefits going to the organization instead of to the middle man or the speculator. Another benefit is reducing the competition. One other word along that line: Under the system that prevailed before we organized, the commission man or middle man pitted every grower against every other grower; it is impossible, of course, to entirely eliminate competition; that goes without saying, because every producer of fruits is to a certain extent a competitor of every other producer of the same class of fruits; but under the commission system, the buyer and speculator pits every grower against every other individual grower. He goes to Jones and says, "Jones, I can get Smith's fruit so much lower than you sell it," and then goes back to Smith and says to Mr. Smith, "I can get Jones's fruit so much lower than you will sell it," and in this way he puts each of them in competition with the other.

As to the conditions we are confronted with in the orange business on the subject of commissions: The orange business had been done entirely upon the commission or consignment basis. I shall never forget an incident in which a man came to my office and wanted to borrow \$100, and as he was very good, I said he could have the money, and then he drew out a bill and said, "I want to settle this bill." I looked at it, and found that it was an account of sale of his orange crop. He said he had turned over the entire crop to the commission man, delivering the fruit at the packing-house, and they brought him out \$93 in debt, and with that \$100 he wished to pay off this indebtedness of \$93. I asked him if he had the statement showing to him that the fruit was sold, and he said no, and asked if he had a right to know that. He said, "My wife is about crazy, and is afraid I am going to be sued, and I probably will be sued and I want to pay this bill," so I loaned him the money. He had turned over his entire crop and \$93 to get out of the hands of the commission man. Now I say that under an organized system, you reduce the competition to the lowest possible terms; you eliminate that and the destructive features of it. The whole trend of modern economics is toward the elimination of the individual, and toward unification of power for the purpose of eliminating this destructive competition, where every man is pitted against every other man. That is what we want to do in an organization of fruit-growers.

Another benefit, and that is, distribution. What we must have is a wider distribution of our fruits, and we must have a systematic and orderly distribution of it. This must be brought about by organization, and in no other manner. There is another question right along with this, and that is mutual defense. I will say more about it later on. It is my belief that combination of nearly all, if not all, of the agencies by which our products are transported East would benefit all fruit-growers. As I see the situation among the green-fruit shippers of Northern California, we are at the mercy of two men. I do not say they are bad men, but God help the fruit-growers when they get to be bad men. I think that from the fact that you are at the mercy of two individuals, you ought to know that it is time to pit an organization against a combination. It is time that the fruit-growers of California should stand in a solid compact to meet a common enemy. I have not said a word about anybody being bad, but I say that it is a dangerous state of affairs when the industry of any community or of different communities is at the mercy of two or three or any small number of men. And you will not get any relief for the mere asking or from sentimental grounds. Nobody is going to listen to any statement upon moral grounds. You will get relief in every line when you compel it, and no sooner; and you will compel it when you control their tonnage and hold it *en masse*, for the interests that belong to them.

Now, as to the "how" of coöperation and organization—that is, as to the manner. We need not be dogmatic. By comparison with the old time-worn statement, "the way to resume is to resume" and "the way to coöperate is to coöperate." When the disposition is present among the producers they will find a way to do it. I remember very well when the orange-growers of Southern California undertook to organize. I had been all my life in another line of business, but had an orchard coming into bearing and I interested myself because all the business interest had been involved in it. We held a meeting and had as many growers perhaps as are here to-day. Everybody wanted to know what was to be done, and I admit that I knew less about it than any of them. But I remember of saying this, "Gentlemen, it is proposed here that we appoint a committee of eleven men and make an organization of this thing, one that will take charge of the business and market our oranges for us." I said further, "Gentlemen, this audience cannot select eleven men into which I am unwilling to put my crop and have them pay the proceeds to me after they have paid the expenses of the organization." Further, that if the orange-growers of Southern California don't know enough to market oranges they had better sell their ranches to some one who does know enough to attend to that part of it, for if you don't, presently the other fellow will own your land. What I mean by that is, that if the prune-growers, about whom Professor Childs has been talking, would add the spirit of coöperation they would soon find themselves prosperous. If they are willing to coöperate I venture to say it would be possible to get them together and select six or eight or ten men who would transact the business better than they transact it themselves. I was amused with what was said here yesterday about the salaries paid to leaders. I have drawn the best salary among the orange-growers myself, and I can look complacently upon it. The showing that the gentleman made here yesterday reminds me of an incident where a complaint was made against my salary, and I found, in summing the matter up, that it cost them 60 cents an acre to increase my salary. This complaint was made when there was a desire to have my salary increased. When you get a combination and a large volume of fruit, the salary and that sort of thing are incomparable to the question of service. What has the payment of salary by the raisin-growers of Fresno got to do with the matter? It is the question of the rescue of an industry from insolvency or bankruptcy and placing it on a successful basis. The salary has little to do with it. As I said before, the organization will find its methods if the spirit is present. We must bring this organization about in the direct manner of give and take, because no man can have his own way. He has got to yield at this and at another point, and another man has got to

yield, and every man yields something, and they all get their profit. In my judgment an organization should be decisive as to its character. When we organized the orange-growers of Southern California we were confronted with the statement that the middle men or shippers or packers controlled the market, and I speak in no disrespect of them. We were confronted with the statement that they controlled the markets, and unless we employed them we would not be able to market our goods at all, and that they held the keys to the avenue through which the distribution should be made to the markets. We took the ground that nobody controls the markets but the man who controls the supply. Consequently, if we held the supply we would have ready access to the markets. We, therefore, at one sweep eliminated all the speculative features from the hand of the grower to the hand of the merchant in the market itself. We left no ground whatever for a speculator to stand upon, so far as our business is concerned, and we have paid no tribute to any one—except the growers who refused to cooperate with us have more or less hurt us and damaged us in the market. But so far as the packers and speculators are concerned, they are no damage to us and no benefit to us one way or the other, as the grower puts his crop into other hands. I therefore take the ground that there is no reason why our products should pass through the hands of, and that we should pay tribute to, the speculators as an abstract proposition. There is no reason for it. We want organization at both ends of the line. Some one said something yesterday about widening the markets and increasing consumption by distributing the fruits into all the markets of the world. Who is going to do that if the producers do not? You don't think the speculators are going to do it. An organization at the other end of the line is the way to get new markets. The Southern California Fruit Exchange has the best organization in the markets that was ever made in the orange business. Why I say that is this: We sell more fruit, of course, than any other four or five shippers of California oranges, and sell it for more money than any of them. I don't hesitate to say that we sell our fruit in all the markets except the auction markets, where the fruit sells on the block for what it is. In all the other fruit markets of the United States we sell our fruits for more money than any operator that ever shipped fruit from California, and for less cost. Another thing as an evidence of our thoroughness of our organization at the other end of the line: We sold oranges during last year from Victoria to Florida and from Los Angeles to Montreal; our sales amounted to \$2,750,000, and we never lost one dollar in bad accounts. If I am met with the statement that this is a phenomenal streak of luck, I will add that three seasons have passed, and \$7,000,000 worth of business done, and only \$866 lost in bad accounts. I challenge the commercial world to beat it. It is

organization that does it, and we have given attention to the business. We have put into the markets intelligent men, who have no business but to serve us—no interest in anything but to take care of what we have committed to them. They are studying the credits and watching the business at every point, and we have, therefore, escaped loss by reason of that thing.

One other thing, while I am talking about this organization at both ends of the line—it is this: My view of it is that California fruit-growers handling all the classes of California fruits should coöperate not only in their several classes but generally. What I want to say, and what I think is not an absurd idea and not a dream, is that the time will come when, in these distributing centers—in the great markets of the East and in the very great cities of the East—we shall have a house that is the distributing center for California products of every class. There is no reason why, gentlemen, in my judgment, after a number of years' experience in managing a large business through the East with a large number of agencies under control, the oranges and the prunes and the raisins and the dried fruits and the honey and any other and all other products of the vine and tree of California should not be sold through the same agency in all the great markets of the country. Some one says that the orange men cannot sell prunes. Very well. In all the markets we are, ourselves, obliged to have from two to five men. Why couldn't one be a prune man, another an orange man, and another for dried fruit? How did the men we have learn? They all learned by experience, and I don't see why we cannot have trained men in all these departments, and these agencies could be the central points. Why shouldn't every dealer in Chicago know that there, on South Water Street, at number so and so, is the agency for California fruits and that there is no changing the selling price. Couldn't this business be put on as steady a basis as iron or any other product? I would not combine at this end of the line. Let the prune men run their business at San José, the raisin men at Fresno, and the dried fruit men wherever they elect to—all managing their own business at this end of the line, but under a common management in the East. That makes practical the reduction of the expenses to the minimum. It will bring to us, gentlemen, a service in the marketing of our fruits that, in my judgment, nothing else can ever bring. How are you going to get prune markets unless you have got men in the markets talking prunes all the time? If you had a general market and each industry sharing in the rents and expenses of the general headquarters, it would reduce the expenses. We are hoping to continue to make a little profit in this business. Everybody knows that with the increased product of our California orchards we are compelled to reduce the price of sale to a minimum. Some gentleman was telling

you here yesterday about the values of our mountains of iron ore in California, and you smiled when he elaborated on that subject. I think we ought to make in California the nails used in packing our fruit, also the paper that wraps it; we ought to own the stumpage from which the lumber is cut to make the boxes; and every part of it ought to be within the coöperation of the fruit-growers of California. That is a practical business proposition, and not a dream. We have but a small conception of the extent of this business. When you get combined the dried fruit, nut, orange, raisin, and prune industries, and then forecast what these industries are to be when this great country of ours is developed and the wants of the world are supplied as they will be, the volume of the business is vastly beyond our comprehension. There is no question but that we are to supply the vast population of the world. I do not think any of us have a conjecture of what we have to do in the Orient. Some one made a statement not long since that within two thousand miles of the Philippines is located half the population of the globe, and we are going to sell our products to the Philippines and the other part of the world. We want the earth with the ribbon around it. I am not talking politics; I don't care about acquiring the islands or anything else, for that matter.

In the paper submitted by Mr. Stephens yesterday he said the objector was always in the land. There are some others, however; the "smart alec" is here to stay. Nothing will cure him but the Sheriff with an execution in foreclosure. Another objection which I have heard about the impracticability of organization is because of the scattered condition of the growers. They say, "Away up there in a niche of the mountain a man has an orchard, and it is five miles to the next one and twelve miles from there to the packing-house, and they cannot stand the expense of hauling." What is the consequence? The speculator comes and buys it. Who hauls the fruit? Why, the man who grew it hauled it and pays for the packing of it. The man who comes from San José and drives out and buys his fruit for a cent less is making a profit off you. The man who grows the fruit hires the livery team and pays all the expenses of the man buying it. Why couldn't you have an organization right here doing that? All a man has to do when he has packed and cured his fruit in compliance with the rules of the association regarding grades and standard, is to send it to the association, and that is the last he sees of it or hears about it until he gets a check for the amount of the sale of that fruit. The grower can know absolutely that he will get what is coming to him after the cost of the organization is deducted, and no more or no less.

There is another point on organization: It must be on an equal basis—no privileged characters. It is a level proposition, where every man shares alike in the benefits and the burdens of that business and

shares alike in the expenses of it. I trust this convention will enlarge upon this idea. I am glad to see the prune men trying to organize. I wish we could get our ideas large enough to cover all these interests in the same sort of a compact. It is perfectly practical. Then we will be able to take care of ourselves. We will not be able to build railroads, but there will not be another fellow getting his freights cheaper than we do. All we can ask is that we be placed on a basis level with every other man and that there are no privileged characters. I believe we have an excellent future, but I believe we have to conserve our interests and unite them. This method will not exactly suit every one; we will always have the "kicker" with us. But we have got to take the conditions as we find them and work them out to the best accomplishment. We have got to take the thing as good organization brings it about, and I believe we will succeed. I thank you for your attention.

Vote of Thanks.

JOHN MARKLEY. I move that the thanks of the convention be extended to Mr. Naftzger for the splendid manner in which he has presented this matter to us.

Carried by a rising vote.

DISCUSSION ON UNITY OF ACTION.

JOHN MARKLEY, OF SONOMA. I believe unity of action is what is needed. I am a prune-grower, and I believe that if we succeed we have got to unite and reduce our business to a business system and have it managed by competent business men. I have had some experience in the resolutions passed by Fruit-Growers' Conventions, and I must say I have not much respect for them. Therefore, I believe to have success, something more tangible is needed. In San Francisco once, the Fruit-Growers' Convention passed resolutions to create a California Fruit Exchange. The convention named the officers and I was one of them, but gave us no money to work with. We managed it for about a year, and at the end of that time the board of directors raised \$600, which did not pay for the money we had been out, and we had to quit business. At Fresno the convention appointed Mr. Adams to do certain things, and suggested that he be given \$50. They proceeded to raise this amount by subscription down there, and got but \$4 for him to carry out his instructions with. You cannot expect to perfect any proposed organization without money to work on. It is well enough to pass resolutions, but it takes capital to put them into effect. The prune-growers ought to come together where they can quietly and thoroughly discuss this matter and form an organization on a business basis—one representing the people from all sections of the country. Then I want

to see thorough business men at the head of it. But first I would want to see gold coin enough put up to pay the expenses. Resolutions are nice enough, but it takes money to make a thing of that kind move. You have got to have the necessary coin. If such an organization can be formed I am willing to join and put up my crop if it is put on a business basis, but I will not go in on resolutions for the fun of the thing. I want coin and business men at the head of it. There are some things absolutely necessary that some of the people in this county do not understand. To get the advantages of the system you have got to have warehouses; in many places in California there are no warehouses, and they will have to be built; the State will have to be canvassed and subscriptions would have to come in. You have got to have coin raised by these subscriptions to pay the expenses. I am ready to join such a coöperation and am willing to pay my share of the money, but I want to see the money put up to insure me that the business will be done and that it will be conducted in a business way.

A. R. SPRAGUE, OF LOS ANGELES. I am very glad indeed that this matter is coming up in this way. We have spent time enough, I think, upon general discussion as to whether it was wise to coöperate or not. I do not think there is any one who needs to be convinced upon that one question. The main question is: What is the best way to secure a successful coöperation? Now, it is not a light thing to organize even the prune industry of the Pacific Coast, and I see no reason why we shouldn't organize the dried-fruit interest at the same time. As a general thing, in other parts of the State, a man who raises prunes also raises peaches and sometimes apricots. If you organize simply the prune interest you will have to go over the same ground again for the other interests, and it will cost nearly three times as much. If you try to organize the whole interest you will be able to get more of the whole community. It is a large proposition—larger than many think for—but you will get elements of strength in the whole that you will not get in the separate interests. We must understand that this is a difficult matter, where the prejudices of all the growers have to be overcome and where the individualism is so strong, and that has to be in the collected interest. A matter of that sort has to be taken up in detail—in the same manner that a political campaign has to be taken up. Some arrangement for so difficult a canvass has to be made; this cannot be done without cost. The idea that you must have seventy-five per cent to start with is absurd. You should take advantage of every step. If you get thirty per cent you will be successful, and if you get fifty per cent you will be successful in a larger way. Every step gained is a step toward success. I believe that before we leave this convention we should determine upon those certain things—that we shall start forward to success, and that we must have no such thing as fail. We

must try and succeed in organizing coöperation for the dried-fruit interest, at least, of the Pacific Coast—in the largest majority which we can possibly secure. If we shall gather together a sufficient percentage so that we may be able to absolutely control the price, as it has been done in other interests, well and good. If we cannot get as large an organization as we would like, do as well as we can. But let us get some kind of an organization. Let us go step by step, and not hazard the whole thing on one throw. I don't think you can obtain subscriptions enough on the outside to carry this thing through. It is a good deal easier to obtain a promise to pay out of the proceeds of the crop; that is, pay a certain percentage, which will be sufficient, perhaps, for the work, whatever it is. It is difficult to draw out of the pockets of reluctant growers, in advance, a sufficient sum of money to do the work with. I submit that it is well worth our while to consider whether some plan of that kind cannot be arranged, by which, when the organization has obtained sufficient headway to make it evident that we shall have a very large output, a certain percentage of the whole market valuation shall be appropriated to the purposes of organization, in so far as it may be found necessary for that purpose. Now, this matter will appeal to you, I believe, and I speak from considerable experience in the matter of organization, for I have spent two years in going among the growers of this State. I believe this plan will appeal more strongly to the whole people. If we have an output of two-million pounds it is going to be a very serious business to maintain any price much above that which we now receive, and the output is likely to increase year by year. We must search for every possible means of economy and present our fruit at the table of the consumer—at the very table where it is consumed—at a less cost than they are getting it for now, and save those profits which it is no longer possible to save with the present manner of marketing our fruits. We cannot go below the present cost of production with the present methods, and the great field for economizing is in the marketing of our fruits. If the product increases as greatly as is promised, we must economize from beginning to end. We should have from the beginning the prices from the orchard to the table of the consumer. I am no stickler for any particular method of organization. I am heartily in favor of the methods presented by Professor Childs; and was heartily in favor of most of the plans suggested last year. The way I understand this proposition is that the fruit will be kept in the hands of the association and it will be handled as the association sees best, and those in the center may take advantage of whatever facilities and the best methods which present themselves. I think a little too much emphasis was placed yesterday upon the individual in the way of organization. I know very well the success of the raisin organization is due, not to a single man, but to

half a dozen men, and the man who now conducts that organization would have been wholly unable to organize it had it not been for the self-sacrificing manner of these men. We must have our ablest men, but those ablest men must be supported by men of good judgment. If we are going to do anything we must begin at once—there is not a day to be lost; the talk of postponing it until April or May is absurd. We must get at it without delay, when we consider the magnitude of this matter.

MR. RIGHTER. How do you propose to get the people out and talk to them upon this matter?

MR. SPRAGUE. We have found the proposition of local organizations in the different districts an excellent one. Wherever you can get half a dozen men whose interest you can secure, there you have a nucleus for an organization.

MR. RIGHTER. What I mean is, how are you going to get the people to understand what you want and what you are trying to do? Would you go to the schoolhouses of the different districts and talk to the people and tell them what to do?

MR. SPRAGUE. Yes; that is about the way to do it.

MR. GORDON. I am going to answer one remark, or rather an assertion, that was made. It was said, "There is too much importance placed on one man," referring to Mr. Kearney. Now that is probably true. But you know there is a tendency among human beings—at least with Americans—to magnify the importance of one man. As an example: When the Sunday-school teacher said, "Who slew the Philistines?" one little fellow rose up and said, "Dewey." It shows the tendency of the American people to idolize one man. The raisin-growers were organized: First, we got our people down to such an impoverished condition that they would grasp at a straw. And for that reason I do not believe that the people of Santa Clara Valley are poor enough at this time for organization. Wait until about twelve months longer, until you have got a good rainy season and one hundred and fifty million pounds of prunes on hand and forced to sell those prunes for a cent a pound. For many long years I have heard the people of this valley boast of their valuable lands. As I stated yesterday, I can recollect when, only a few years ago, you were selling your prunes for 10 and 12 cents a pound—that is, about ten or twelve years ago. We were then selling raisins for 5 cents a pound, which was a good price on the investment. Prices went down until we got only from \$17.50 to \$22 a ton for our product. You can readily understand that, where it costs \$45 per ton to produce an article and the producers are forced, for a year or two, to sell that article for from \$17 to \$22 a ton, his finish is near at hand. I do not know the cost of prunes. But if you get them down to thirty cents on the dollar of what it costs to produce them, you will have an organization here. How to get the people to organize is

one of the most difficult questions to study. First, Mr. Chairman, you have got to produce ten or fifteen or twenty patriotic citizens among your producers of prunes; you have got to have some men who are willing to devote time and money to get his fellow-man to understand the situation. Now as to the mode of getting your association. It is only through and by failures that you will attain success. For five years in Fresno we struggled and failed before we got an organization. Mr. Kearney, now president of the association, was not in the first of the fight. Mr. Kearney was at that time, probably, like a good many Santa Clara men—with lots of money—willing to let the thing go its own road. Finally, when we were all worn out, Mr. Kearney came to our assistance. He came upon the scene and took an active part—an able business man he is. But could he have organized alone? Never. He is a magnificent leader, and with the help of the associates he had, got an association organized. There is, probably, a no more discouraging proposition on the face of this green earth than to get twenty-two hundred people into one way of thinking upon a given subject. You will have to select from your number men of different character and preach this cause as righteousness to the different types of people you have seen in your business. Now, Mr. Kearney is not a success at all to go out and get the people to sign contracts. He is not the kind of a man to go out in that way—he is a leader; somewhat of an aristocrat. You have got to have a man constituted for that purpose. Now as to the manner of enlightening your people: You will have to hold school-house meetings, and have a number of men take hold of this cause and put up the preliminary money. You will have to have patriotic men go out and preach to these people, and I can tell you it is a laborious proposition, and I am still afraid that the Santa Clara people are not poor enough at the present time to accept salvation.

PROF. CHILDS. I move that all persons interested in drying fruit—peaches, apricots, and prunes—meet here this afternoon at the close of the session, promptly, to take action toward forming an organization on the plans suggested.

Motion carried.

Recess until 1:30 o'clock p. m. of this day.

[After the regular session of the forenoon, there was a call for an after meeting of all those who were interested in action being taken at the earliest moment possible in the movement for coöperation in the dried-fruit interests. Almost the entire convention remained, showing the great and general interest that was felt in the matter.

Judge Aiken presided at the meeting.

The contract of the Pacific Coast Fruit Association was approved, with the suggested amendment that there should be no temporizing with other interests in the way of allowing any member to divide up his product with any other association.

There was also a unanimous decision, amid much enthusiasm, that a State Convention of fruit-growers be held at San José on the third Monday in January, to take definite action in the direction of organization.

The meeting then adjourned, with expressions of congratulation upon all sides upon the fine results that had been attained.]

AFTERNOON SESSION—SECOND DAY.

WEDNESDAY, December 13, 1899.

At 1:30 o'clock the convention reassembled. Vice-President AIKEN in the chair.

DISCUSSION ON ORGANIZATION.

MR. NAFTZGER. The proposition mentioned by Mr. Sprague this morning—that you have a certain per cent of the fruit before you effect or conclude an organization—I think wherever that is done in that way you will make a mistake. I believe you can make a success of a small percentage, but not a conclusive success. In the orange business we undertook in the beginning to get ninety per cent. I don't like the idea of taking in every proposition in order to get the ninety per cent in, which you will have to do in order to get that number into the association. We made our proposition so broad in our attempt to get ninety per cent that we found it was not practical. There were a lot of fellows come in with their "isms" and dogmas about how the thing ought to be done, and it got to be a very much "go as you please" business. We had to take them out and organize again on a business basis, and we dropped sixty per cent the first thing we did and fell down to thirty per cent, and we have never had, since we organized on a practical business basis, over thirty per cent, but we have set the pace for all the orange-growers in Southern California nevertheless. We would do a great deal better if we had more, because this outside business makes us more or less trouble all the time. If I had time I might tell you that we control many of the markets, because we have a capable man on the spot and a large quantity of fruit.

Another question was raised here at the close of the meeting: I spoke this morning about the necessity, as I believe it, of making this organization thorough all along the line clear to the other end. Now, a gentleman said to me, at the close of the meeting, that he thought of organizing and had very strong packers in the community, and that they had to include the packers. This gentleman said to me that he did not think they could prevail upon the growers to come in unless they took in the packers also. Let the growers come in, and if the packers don't want to come in let them stay out. Our growth in Southern California now is a permanent and steady one, because we are able to show the grower that we will get more money for him than some one else will get for him—that we are in the market. On the other proposition, the specu-

lator knows more about the market than you do—and I am not charging any one with ignorance—for under the system by which you do your business through the speculative houses they are the only ones who know the markets, and you are shut out. I think that the grower should get his fruit to the market by the shortest route possible, and through organization he will know as much about the market as any one else at all times. In our office we issue bulletins about the shipments and prices of fruits, which we hand to our members. When the fruit is in the car we take it, and the local people have nothing more to do with it until the fruit is marketed and the people get their money. At our office we issue this bulletin daily, giving them all the information concerning the market for the day, also all telegrams; so the people are advised very reliably. As a result, I can say, without being immodest at all, that the Southern California Fruit Exchange is the best known orange shipper in the world to-day. We are better known in the markets and more generally known to the whole people, because we do a great deal more business than any one else, and our brands are better known all over the world than those of any one else. We have come squarely in contact with the trade itself.

PROF. CHILDS. The difficulty with us here is in regard to the money. Regarding this prune contract, the growers want to know how they will get their money?

MR. NAFTZGER. We have been so prosperous down south that we have got plenty of money. It was necessary at one time to draw money to make provision for those who needed it in advance, and this we did. We had an arrangement among the bankers by which an order could be given by the grower. The grower issued an order on the association into which he had put his fruit, to pay to the bank the proceeds of his crop up to a certain sum. The association wrote its acceptance on that order, and the bank took it as collateral. The banks would not do that when the trees were in bloom or half-grown. It is a doubtful proposition in my mind to make it too easy for men to borrow money. [Applause.] I think it is a good thing for the producer to keep out of debt as much as possible. Until your crop is matured it is pretty difficult to make it a basis for money unless you give it up to a speculator, and if you do it you are liable to be always in the hands of the speculator.

QUESTION. Are you incorporated under the coöperative principle, or a joint-stock corporation?

MR. NAFTZGER. Just a simple corporation without capital. The Southern California Fruit Exchange is organized under the corporate laws of California without capital. We do not need money. We have an exchange in every county. Those local exchanges are incorporated, and then enter their local associations made up of one, two, or three

hundred cars, who do their own packing under whatever regulations suit them. All we want is that when the fruit is properly packed that they turn it over for sale. When the fruit is sold by our agent in the East the money is remitted directly to the exchange making the shipment.

QUESTION. Your inspector determines the quality and packing?

MR. NAFTZGER. The trade does that more than any one else.

QUESTION. Have you a system of inspection?

MR. NAFTZGER. No, sir. We started that way, but we find enough friendly rivalry among the exchanges to try and keep their grade up and compete in the markets for the top prices.

QUESTION. Have you any advantages in the freight rates?

MR. NAFTZGER. We sell the fruit for just as much as we can.

QUESTION. Do you have any control over the subordinate exchanges?

MR. NAFTZGER. Only the marketing of the fruit.

QUESTION. What do you do, then?

MR. NAFTZGER. We have control over the selling agency. The Eastern agencies are appointed by us and are entirely under our control. The goods are all billed to our order.

QUESTION. Do the other subordinate exchanges have capital?

MR. NAFTZGER. No, sir; not as a rule. They own their own packing-houses.

QUESTION. What if an individual put part of his crop in your charge and part elsewhere?

MR. NAFTZGER. We do not permit of that. He goes the whole hog or none.

QUESTION. Who fixes the prices—your central association?

MR. NAFTZGER. All our goods are sold delivered at the other end of the line on the conditions of the market as we find them.

QUESTION. Do you ever employ outside packers?

MR. NAFTZGER. No, sir.

QUESTION. What is your rate of commission?

MR. NAFTZGER. Just exactly what it costs to do the business.

QUESTION. What does it cost?

MR. NAFTZGER. An average of about three per cent of the gross selling price. Covering all charges from the time the goods are loaded for shipment. We have nothing to do with the packing charge or anything pertaining to it. From the time the goods are ready for shipment our average cost has been about three per cent on the gross sale.

QUESTION. Half of the cost on this end and half on the other end of the line?

MR. NAFTZGER. More than half at the other end of the line,

because we have from fifteen to twenty salaried agents on pay all the year round.

QUESTION. If A put a good pack and B not so good, would you handle both?

MR. NAFTZGER. Yes, sir; the goods are sold on their merits and the association with the excellent pack gets the benefit of it. We have goods in our association that can be sold in the auctions of the United States without being opened, because they know it is just exactly what it is represented to be.

QUESTION. Do you sell in carload lots?

MR. NAFTZGER. As a rule. A car lot will be sold and divided between two or three merchants by common agreement where the market is small.

QUESTION. What cars do you use?

MR. NAFTZGER. As a rule our business has been confined almost entirely to the Fruit-Growers' Express cars and the Santa Fé refrigerator cars.

QUESTION. If we saw proper to use another car would you permit that privilege?

MR. NAFTZGER. I don't think so. I prefer not to state our attitude on that question definitely, except to say in a general way that we are going to undertake to protect our rights.

QUESTION. Have you the right to route your cars?

MR. NAFTZGER. I will say there has been up to this time no interference with our usual custom of routing our cars. As far as I am concerned as manager of the Exchange, I do not question the right of the railroad company to route the shipments. I think, under the decision of the court, they have a right to route the shipment and choose the agency by which it will proceed to its destination.

QUESTION. Would that plan apply to green fruits—peaches, etc.?

MR. NAFTZGER. We handle oranges and lemons only, so far as this end of the line is concerned. At the other end of the line our agents sell for the Southern California Deciduous Fruit Exchange.

QUESTION. As to the green fruits—you will have to market them immediately?

MR. NAFTZGER. Certainly. You have got to market them through some agency; either in the auctions or in the Western markets.

QUESTION. Regarding the right to use another car from what you have mentioned, I infer from your answer that there is, or will be, an effort made in regard to that question on the part of your organization.

MR. NAFTZGER. As I said, we don't propose to sleep on any of our rights, and intend to maintain them. Now, gentlemen, I suppose that so long as you are asking me these questions I will try to answer them. The decision of the court is this: There have been several cases;

one was the Memphis-Ogden case, in which the court has held that the railroad that takes the fruit and guarantees the rate has a right to choose the agencies by which it will carry it to its destination. The Memphis-Ogden case was this: The shippers asked the privilege of choosing the Pennsylvania & New York and New Haven & Hartford as a route. The fruit was to be shipped over this route to some point in New England. The railroad company took the shipment and shipped it at the rate agreed upon over a different route. The shipper denied the right of the road to change the shipment, and hence the suit. It was exactly in accord with the decision of the United States District Court in a similar case, in which the court held that the carrier guaranteeing a rate to the point of destination had a right to choose the agency to carry it. It seems to me that is good sense and good law. On the other hand, the court has also said in the same connection that the carrier had not the right to choose a more circuitous route, or a longer or more dangerous route, but that they had a right to choose the agency.

QUESTION. Does the thirty per cent of the growers in your organization raise the prices for the seventy per cent remaining outside of the organization?

MR. NAFTZGER. The grower says that if he cannot sell his goods on the spot for as much as the exchange would get for them, he will let the exchange take them. Consequently the speculator has got to buy them at the prices that have been prevailing in the markets, and he is not going to play ball with them.

QUESTION. Would you suggest that all the products of the State of California be centered under one general head? Do you intend us to join you in this undertaking you have so far progressed in?

MR. NAFTZGER. I did not mean an organization in California under one general head for the transaction of the business of these various interests. I said the prune-growers would have their own independent organization at this end of the line, the dried-fruit men theirs, and the raisin men theirs, but that we should have some relation existing here among us—whatever might be necessary—and that we use the same Eastern agencies in the markets; that is, we appoint our agencies in the markets. Take Chicago, for instance, we have three or four men in Chicago most of the time. It would not require another office, another telephone, another lot of stenographers, and all that sort of thing if we joined our interests in Chicago. We could have prune men, raisin men, dried-fruit men, all together in one office. I stated it was with a view to a combination at the other end of the line, making them great places for the distribution of California products. So far as the Southern California Fruit Exchange is concerned, we are now busy practically all the year either with oranges or lemons,

and we could not extend to you an invitation to come in with us at all. We are not looking for business in that way, but we are seeking a union of interest with every fruit producer of California, with the belief that we could simplify the business at the other end of the line in a way that would be profitable to all concerned.

PROSPECTIVE COMPETITION FROM THE PHILIPPINE ISLANDS.

BY PROF. A. P. HAYNE, OF BERKELEY.

MR. PRESIDENT, LADIES AND GENTLEMEN: It was my good fortune, while serving as First Lieutenant in the California Artillery, to have been assigned by the War Department to the duty of reporting on the agricultural resources of the Philippine Islands. Unfortunately, the natives did not take kindly to the status of affairs, and I found that the problem of proving that the plow was mightier than the sword was not quite as easy a task as I had hoped. I do not want you to think that I claim to know very much about the resources of the Philippines. I was there, however, upon this special duty, for a year, and I picked up a few facts concerning the country, most of which I have reported to Washington. The subject is a very large one, so I shall not inflict myself on you very long, but give you a slight rapid sketch of the resources of the islands, bringing out those which may compete with ours in the United States. I have here with me a map of the Island of Luzon, which is only about half the area of the Philippine archipelago. As you will observe, it is a very mountainous island and quite long; the coast-line being nearly three times that of the State of California.

Rice, of which there are over a hundred varieties, is the most important agricultural product of the Philippines. Bread is a luxury, as wheat and barley are not raised there, on account of the climate, and there is no danger of competition with the American rice, as the islands do not raise enough for their own purposes. Over three million dollars' worth are imported annually from China. The population of the islands is very dense. On the Island of Luzon there is a population of four and a half millions in the inhabited portion, as compared with a million and a half in the inhabited portions of the State of California. In all the islands there is a population of twelve millions.

Hemp grows wild in the forests or where forests have been cleared away, and is not cultivated. The value of this and other products is much less than it would otherwise be if it were not for the labor problem. The native will not work so long as he has a bushel of rice in his hut. It is impossible for a white man to do manual labor there for a great length of time. They may direct it, but not do the actual work

themselves. Negroes have not as yet been given a sufficient trial there, and the attempt might be as dangerous for them as it was for the Chinese, on account of the hostility of the natives.

Sugar is one of the chief industries of several provinces in Luzon and of several islands in the south, notably Negros and Panay. Large quantities are exported, chiefly to America and England. Great improvements can be made in methods, and probably the sharpest competition the United States will have will be in sugar. The soil and climate are especially well adapted to sugar-growing, and with a little improvement in methods, roads, etc., the export of sugar will increase vastly.

There is no danger of any serious competition in citrus fruits. The best oranges they raise there are scarcely fit to eat. They are not as good as the worst that are produced here. It takes four or five of their limes to make a good drink of lemonade. The acid juices are sought after by all in that climate, and instead of there being any danger of competition from the islands, no doubt they would offer a splendid market for the sale of our citrus fruits. Care must be taken in the shipping, however, for in several shipments that were made about ninety per cent of the lemons spoiled.

Cotton is grown on the islands, but to a very limited extent, and can never come into competition with the product of America.

QUESTION. How about the woods, teak wood in particular ?

ANSWER. I do not know if teak is grown. The most valuable woods are the hard woods. The value of the soft woods in the Philippines is so slight that upon recommendation of the Quartermaster Department the United States Army brought from the Pacific Slope all the wood that is used in the Philippines.

Q. How about the gold and iron deposits ?

A. They are very large and extensive. The iron deposits are very rich, but owing to Spanish rule it has been impossible to exploit any of the mines to any extent, on account of such a continual system of bribery which had to be resorted to.

Q. How about the gold ?

A. The mineral resources of the Islands are great, and I expect in the next few years to see great excitement in that region. Gold and copper and nearly all the minerals you find here are found there in abundance.

There is one thing more that may possibly compete with us, and that is the cattle. It is a magnificent cattle country in many places. They have plenty of feed and raise it without irrigation. I think it will be some time before the cattle will be dangerous to us, on account of cattle thieves and ignorance of the natives.

Q. How do grapevines thrive there ?

A. As in all tropical countries they grow, but the fruit does not ripen. I have only heard of one or two cases where the vine would mature its fruit. By constant care and certain systems of pruning and a great deal of difficulty, they have been able to raise a few pounds of grapes.

Q. How about the pineapple ?

A. It grows in great abundance, especially in the southern part of the Islands. The coffee industry has got from an exporting industry to zero, owing to diseases.

A difficulty the Americans will have to contend with in civilizing the natives is the question of insects. Most of these people believe and practice that every time you kill an insect the Lord will send twenty more. If you hire them for that work they will go on a strike, because they believe it to be sacrilegious.

Vote of Thanks.

PROF. CHILDS. I move that a vote of thanks be extended to Professor Hayne for his very instructive remarks on the Philippine Islands and its industries.

Motion carried.

THREATENED REDUCTION OF DUTIES ON FRUIT IMPORTS.

B. N. ROWLEY, of San Francisco, submitted the following resolution:

WHEREAS, The government of the United States has entered into a reciprocity convention with the government of France, in which it is contemplating a material reduction of duties on the imports of French prunes, walnuts, almonds, preserved fruits, olive oil, wines, etc.; and,

WHEREAS, It is the belief of the fruit-growers of the State of California, assembled at their annual meeting, that any lessening or removal of the present tariff duties on French fruits, nuts, and wines would work a most serious injury to the fruit, nut, and wine industries of the Pacific Coast; now therefore, it is

Resolved, That the fruit-growers of the State of California do most earnestly and strenuously protest against any and all proposed reductions from existing tariff rates on imports of French prunes, walnuts, almonds, preserved fruits, olive oil, wines, etc.; and further, it is

Resolved, That the honorable members of the United States Senate are hereby respectfully requested to so modify the proposed reciprocity treaty between the United States and France as to permit the present tariff on imports of French fruits, nuts, and wines to remain unimpaired; and thus giving to the fruit-growers of the Pacific Coast that measure of protection which satisfies labor with a fair return and lends safety to the millions of capital invested in their orchards; it is further

Resolved, That a copy of these resolutions be engrossed and that the same shall be forwarded to Senator George C. Perkins, through whom the action of the fruit-growers of California, in convention assembled, shall be made known to the honorable members of the United States Senate.

Referred to Committee on Resolutions.

The committee immediately reported favorably and recommended the adoption of the resolutions.

The same were thereupon adopted.

ENTERTAINMENT BY THE CITIZENS OF SAN JOSE.

JUDGE LEWIS. In behalf of the different organizations of San José, I beg to announce that this evening there will be a social and entertainment in this hall, by some of our excellent ladies, which will be confined to singing and music and to which you are all invited. There will also be light refreshments served, and I trust you will all come. I know the more we get acquainted with you the more we will like you and I know you will like us better. The entertainment will commence at 7:30.

EXCURSION TO STANFORD UNIVERSITY.

Announcement was made of an excursion to Stanford University for Saturday by the local committee, and that a special train had been provided through the courtesy of the Southern Pacific Railroad Company, through the solicitation of their district agent, Mr. Thomas Graham of San José.

PROF. CHILDS. I move that as there has been a great courtesy extended by Mr. Graham in securing for us this train, the Committee on Resolutions be requested to draw up resolutions thanking him and the Southern Pacific Railroad Company for this great kindness.

Motion carried.

Recess until 9:30 o'clock A. M. to-morrow.

THIRD DAY—THURSDAY.

DECEMBER 14, 1899.

TOPICS FOR THE DAY: *The Raisin Industry—Review of the Season's Output, and Operation of Coöperative Organizations; Fruitfulness; Varieties of Fruits to be Encouraged, etc. Suppression of Fruit and Tree Pests; Tree and Plant Diseases; Beneficial and Injurious Insects, Birds, etc.; Protection to the Fruit Industry; State and National Legislation, etc.*

At 9:30 o'clock A. M. President COOPER called the convention to order.

ADULTERATION OF FOOD PRODUCTS.

M. THEODORE KEARNEY, of Fresno, submitted the following resolution:

WHEREAS, A bill will be introduced in the present Congress prohibiting the adulteration of food products; and

WHEREAS, It is notorious that a very great proportion of the fruit jellies offered for sale are not true to name, and in many cases do not contain any fruit whatever; that the adulteration of olive oil is carried on to so great an extent as to threaten the destruction of an important industry of this State, and that the so-called "brick" vineyards in Eastern cities are marketing large quantities of liquids labeled brandy, port, sherry, angelica, etc., which do not contain a particle of grape juice, but are concocted of glucose, saccharine, raw grain spirit, aniline dyes, flavoring extracts, and other poisonous ingredients, which are deleterious to health, fraudulent, and a menace to our business interests at home and abroad; now, therefore, be it

Resolved, by the fruit-growers of the State of California in convention assembled, That we urgently request of our Senator and our Representatives to assist, by every means in their power, the passage of a bill that can be enforced in every State in the Union which will promptly put an end to the evils herein complained of, and to the further evil of the sale of any articles of food or drink under a false or fraudulent label.

Referred to Committee on Resolutions.

The Committee on Resolutions reported having carefully considered the same, and recommended its adoption by the convention.

Whereupon the resolution was adopted.

RECIPROCITY AND OTHER TREATIES.

M. THEODORE KEARNEY, of Fresno, submitted the following resolution:

WHEREAS, Congress is about to be called upon to consider and approve reciprocity and other treaties with numerous foreign States, which treaties will materially reduce the tariff on many of the leading products of this State, such as dry and sparkling wines, ports, sherries; citrus, dried, preserved, and fresh fruits; raisins, nuts, olive oil, and beet sugar; which reductions of tariff will expose these leading and growing industries to most unfair and ruinous competition; and

WHEREAS, It is desirable to remind our lawmakers that in California the United States possesses a region unequaled in the world in the extent and variety of its natural resources, which if developed under wise laws and the fostering care of our National Government will support a population as great as that of Great Britain, France, or Germany; and

WHEREAS, In view of our geographical position and the great possibilities of future trade along the shores of the Pacific Ocean, the rapid development of this great wealth is of the utmost importance to the strength and glory of this Nation, and cannot be successfully carried on while capital is exposed to loss through an unwise changefulness and meddling with our tariff laws; and

WHEREAS, The Republican party and the present administration have received the cordial and hearty support of the people of California, as shown by the State's greatly increased Republican representation in Washington, which support was given on our faith in the promises and pledges of this great party, through its leaders and its press, that all our industries should, by tariff legislation, receive ample protection, to the end that they may be stimulated to their greatest development;

Now, therefore, We, the fruit-growers of the State of California in convention assembled, do with all due respect, but firmly and earnestly, call upon our Senator and our Representatives to urge upon our honored President and upon Congress as a matter of sound policy, and demand as a matter of common right and justice, that no reductions whatever be made or allowed in our present tariff laws which will directly or indirectly reduce the protection under which we are now working and which has brought us all prevailing and unexampled prosperity.

Adopted.

CO-OPERATION AMONG THE FARMERS AS APPLIED TO THE RAISIN INDUSTRY.

ADDRESS BY M. THEODORE KEARNEY, OF FRESNO,
President and General Manager California Raisin-Growers' Association.

FELLOW FRUIT-GROWERS: The question how shall we market our crops so as to produce the best results is one that is attracting the greatest attention among the fruit-growers of California. Having had some experience in endeavoring to solve the problem for the benefit of the raisin-growers, there has been a considerable demand made upon me for information concerning the methods adopted by us, and I therefore desire, with your permission, to avail myself of the very favorable medium of the proceedings of this convention in meeting this demand.

Raisins have been produced in California for many years, but it was not until 1885 that the quantity reached the round figure of 10,000,000

pounds. The production rapidly increased each year thereafter until nine years later, or in 1894, the output was 103,000,000 pounds. During this period, which was one of great prosperity in the United States, the demand was in excess of the supply, except in 1894, and the raisins were sold f. o. b. shipping points at steadily advancing prices. The panic of 1893, and the excessive crop of 1894, together with the dishonest and suicidal practices of some packers in filling orders with raisins of a quality much inferior to the grades indicated by the box marks, brought about a total change in the methods of marketing the crop. Thereafter the dealers in the East refused to pay for raisins except after arrival and upon examination; and as the demand was very much reduced by this change, and the crop of 1894 was much in excess of previous years, the growers were obliged to ship the raisins East on consignment. I think we have all learned the bitter lesson of the consignment system, and I need say no more on this point than that, with nearly every crop in the hands of a separate broker—for there were almost as many agents selling the crops as there were growers—each grower's crop was used against every other grower's crop to beat down the price and ruin the market. The logical result of all this was that when the commissions, freight, packing, and other charges were paid, the grower not only had nothing left for his labor, but was actually out of pocket on the year's transaction. In fact, raisins dropped to \$18 per ton in Fresno in 1897, and the farmers found it cheaper to use them, and did so use them, as a substitute for barley in feeding their work horses. As a further result of this condition great areas of raisin vineyards throughout the State were uprooted, and in Fresno County alone the Assessor's books show a reduction in acreage in two years of 16,000 acres, representing a loss to the growers in labor and material of at least \$100 per acre, or \$1,600,000. Of course, this meant widespread ruin to the raisin-growers, and hundreds of mortgages were foreclosed, and the farmer and his family turned adrift to compete in an already overcrowded labor market, tramping about the State in search of a day's work.

You will naturally ask, was nothing attempted to put a check upon this condition of things? I answer, yes. For three years efforts were made to organize the growers, but without success. I regret to say that farmers as a class are somewhat inclined to an excess of suspicion at the wrong time, and to an absence of it at the right time. It is also unfortunate that in large business affairs they appear to be lacking in masterful business ability and broad views, which are so necessary and are so conspicuous in the many large undertakings in commercial life. It requires great patience and greater perseverance to win their confidence, but when they secure men of ability, and of unswerving integrity, as leaders, they can be depended upon to fall into line and stay there, however fierce the battle may rage.

To form an organization that will win the confidence of the fruit-growers and command success it is essential—

First—That capable men shall be selected as its officers. And let me say at this point that growers should not commit the fatal error of refusing to pay sufficiently high salaries to secure competent men. The services of able business men are wanted by shrewd men everywhere, and as these services command high salaries, or as such men can use their time with large profit in their own affairs, it is useless to expect to secure them at a low price. Suppose the Raisin-Growers' Association had been obliged to pay their five active directors \$5,000 a year each, or \$25,000 in all, the investment would, it appears to me, have been a good one, for in the little side issue of selling the surplus grapes to the wineries these directors, by their firmness and business judgment, broke up an understanding among the winery companies and compelled them to advance their prices for grapes \$3 per ton, or equal to \$100,000 on the crops purchased this season. Again, in naming prices for this year's crop of raisins, the directors first made careful investigation of the conditions of the market, both in the United States and abroad, and advanced the prices over last year's more than $1\frac{1}{2}$ cents per pound, or equal to an increased profit to the growers on this year's crop of \$780,000. If we should figure on the basis of what raisins would probably have brought without the aid of the association, the increased returns would amount to at least a million and a half of dollars. It should, of course, be understood that high salaries should only be paid to those who can furnish ample proof, in what they have previously accomplished, of their ability to earn them.

Second—Having secured the right men to manage the business, at least seventy-five per cent of the whole crop of the State or Coast should be placed under the absolute control of the directors to be packed and sold. Grades should be established under which the fruit is to be packed and sold, and these grades should be rigidly maintained without fear or favor. The greatest care should be exercised in sending out the fruit in attractive packages suited to the varying requirements of the different markets, and every parcel should be packed with absolute honesty and uniformity. All packages should have on them the brand of the association, in addition to that of the packer, so that the trade shall come to rely upon the association's trademark as a guaranty of quality. One of the most serious obstacles in the way of development of markets for fruit is in the shortsighted and dishonest practice of some shippers and farmers in placing choice fruit on top and poor or worthless stuff in the middle, thus greatly exasperating the buyer. The only hope for a remedy for this evil is in association, which takes the packing out of the hands of the individual. I have said that seventy-five per cent of the crop of the State or Coast should be secured. In my judgment it

would be useless to hope to control the price of prunes, for instance, if more than twenty-five per cent of the crop of the Coast were permitted to be offered in competition with the association's crop.

Third—Do not at the beginning ask the farmer to subscribe large sums of money for any purpose. First prove your ability to make a success of the business, and then he will subscribe if you find it necessary to ask him. This, I think, was the mistake made last summer in the attempt to organize the deciduous fruit-growers. When you have absolute control of the crop you will find business men falling over each other to finance and handle it for you. Get control of the crop first; do it at once; don't wait until the crop is almost ready for picking before you begin this important work, and even if you do not succeed in making such arrangements as you wish the first year, you will be all the better prepared to try again the following year, and in any event you will be much stronger with an organization than without it. One of the greatest difficulties we had to contend with in the raisin industry was to convince the grower that if he would cut loose from the packer and commission man, we could help him to secure advances on his crop; but he quickly found that as soon as the title of seventy-five per cent of the raisin crop of the State, even before it was grown, was vested in the association, the banks were quite willing to cash the growers' drafts on the association to a reasonable amount, payable out of the proceeds of the crops when sold.

Fourth—This, although the last of the four essentials I desire to bring to your notice, is the most important of all: it is the campaign of organization. You will find among the mass of farmers, and especially among those who have been fairly successful, an apathy; a dense, dogged indifference; an incapacity to grasp the possibilities or probabilities of the future; a narrow, all-prevailing suspicion that you have an ax of your own to grind, that is extremely discouraging. Those of you, however, who realize how much time is at stake, how great the loss will be if matters are allowed to proceed as in the past, and how great the gain to all individual interests and to the State at large, if the fruit farmers of California can be induced to organize, should take this matter in hand with the firm determination to win. Much labor will be necessary, and there should be thorough organization to carry on the work. Let it be taken in hand on the same lines as those of a political campaign, with press bureau, men of influence to address meetings of growers at the principal centers, and active workers holding meetings at all the schoolhouses in the fruit-growing districts. In this way you can succeed; without it, you will be wasting your time in trying. Surely the reward is worth the effort, and I can imagine no more inspiring and noble work than to bring overflowing prosperity to this earthly paradise—California.

As a detail of organization, I have been asked the question whether it is better to have one organization for the whole State or a series of organizations scattered over the State, with a central association composed of delegates from the local organizations. We should bear in mind that we are much inclined to be creatures of habit, and we naturally adopt the political idea of local organizations represented in a central body. While this principle is entirely sound in matters of local government, with independent local conditions which must have first consideration, it would not, in my judgment, be at all applicable to a fruit-growers' organization. There is weakness in divided and scattered councils, and in the diverse views of so many judges. Truth is found in the homely saying that "too many cooks spoil the broth." I am convinced that there should be but one organization for each division of the fruit-growing interests within the limits of California; the divisions to be, first—in priority of organization—citrus fruits; second, raisins; third, prunes and dried fruits; fourth, nuts; and fifth, deciduous fruits. Each organization should be given absolute control of the crop, and its officers should have the cordial and unwavering support of its members so as to most thoroughly centralize the power, for the stronger you make the head of your organization the greater influence and success you will secure. This principle has been adopted by the raisin-growers, and although we have members and packing-houses from Woodland to San Diego, we find no difficulty in having every pound of raisins invoiced from our office in Fresno and every grower paid for his crop from the same office. It may appear later on that the management of these various fruit interests could be carried on more economically by merging them into one organization. That subject, however, can with safety be allowed to wait awhile. It is better that we learn to walk before we attempt to run.

There is one feature of our raisin industry that has given us serious trouble and has proved a difficult problem to solve, and that is our relations as growers with the packers and selling agents. Although the packers as a class have found the raisin business very profitable—their large gains in packing charges, commissions, etc., having been swallowed up in unprofitable speculations in raisins and other fruits—they were very much opposed to organization by the growers, and used much influence with many of those whom they had helped financially. However, we proceeded with the organization and loosened their grip on the needy growers by arranging with the banks to let the growers have money on orders on us.

As the virtual owners of the raisins we last season made contracts with the packers to pack and sell our raisins for an agreed price, but the working of the system gave rise to so much friction—the packers never having been subject to control previously—that at the beginning

of the new year I appealed to the growers to arrange to do their own packing and selling independently of the packers, but without avail, there being a large minority who feared to venture. A new contract with the packers was therefore entered into, under which we have worked this season, which was more stringent than the previous one and which provided that at the beginning of the season we would distribute the crop among the various packers at our discretion by an allotment, and each packer was required to agree to buy and pay for, on or before January 15th next, at prices to be fixed by us, all of the raisins allotted to him; all raisins to be paid for in cash before shipment. On these terms one hundred and seventeen per cent of the whole crop, no matter what the quantity might prove to be, was applied for. In other words, seventeen per cent more than the whole was asked for, and we were obliged to scale down their applications. This it would seem should be entirely satisfactory to the growers, but the fault I find with it is that it stimulates a fierce rivalry among the packers both to secure raisins from the growers and to sell them, and although they are under heavy penalties, the forfeit money being in our hands, not to offer inducements to growers nor to share commissions with buyers, both are being done and to the extreme dissatisfaction of those who honorably live up to their engagements, and it is done in such a way that it is simply impossible to prove a case against the delinquent. I feel all the while as if we are camped on the top of a volcano and that an eruption is imminent at any moment.

Another evil in this state of affairs is that the trade in the East is in a continual state of unrest, each dealer fearing that his neighbor is getting the advantage of him in price by this underhanded giving away of a portion or the whole of the packer's commission. I believe it would be very greatly to the interest of the growers if this business of distribution were carried on in such a way that every dealer would be absolutely certain that his competitors could have no advantage in price over him. With this assurance the product would be received with favor and the sale of it fostered and promoted to the fullest extent of the enormous possibilities within the power of the jobbers and wholesale dealers of groceries. With this end in view I shall this winter seek to bring into one organization all the raisin packing houses and seeding plants; and to make the bond of interest stronger between the packers and the growers I shall advocate the purchase by the Growers' Association of one half the stock of the Packers' Association. The profit to the packers coming to them in dividends on the stock, there will be no temptation for any one of them to cut commissions or in any other manner violate the rules of the association, and as a result I shall confidently expect at home, peace and greatly increased profits for the packers, and throughout the East a general feeling of satisfaction in the trade.

Before leaving this subject I desire to emphasize the fact that dealers do not so much desire low prices as they do that they be guaranteed against a fall in prices after they have bought. I have been told repeatedly by influential dealers that they would not object to an advance of a cent or two cents a pound in raisins if we would support the market for them, and we therefore make our guaranty of prices a leading feature of our price lists. I wish also to say that I have by experience learned this fact: that it is not a low price in itself that will make a market for our products, but much more than that it is the good will and active assistance of the trade that will secure customers for you. As an illustration I may say that our crop of raisins in 1897 was 3,250 carloads, and being without organization our prices dropped until in December unpacked raisins could not be sold at 1 cent per pound and we had to carry over 1,000 carloads into the following season. In 1898 our crop was 3,500 carloads, but with organization we put up the price of unpacked raisins to 3 cents per pound, and sold the whole crop—together with the 1,000 cars carried over.

This year the crop is estimated at 2,700 carloads of ten tons each, and with organization we have raised the price of unpacked raisins from last year's figure of 3 cents to within a fraction of 5 cents a pound, or in two years from 1 cent to nearly 5 cents. At this price there have already been shipped out and paid for 2,200 carloads; 150 cars of the remainder are sold on time orders, and the remaining 350 cars are under contract of sale and will be paid for by January 15th next, thus closing up the growers' business on a cash basis within four months from the beginning of harvest, and for the first time in the history of the industry.

Mainly as a result of this success the savings banks report that the growers are rapidly paying off their mortgages; traveling men say that Fresno, the center of the raisin district, is one of the most active business places in the State, and real estate agents say that the value of Fresno town property has increased fifty per cent within two years, with free sales, and that vineyards which two years ago could not be sold for \$100 to \$150 per acre, now find willing purchasers at \$250 to \$375 per acre.

I can assure you that the raisin-growers, almost to a man, are now firmly convinced that their salvation is in combination. With combination we are able to put into practice the lesson Californians have been taught, to "charge all the traffic will bear." With combination we can guarantee to the dealer that if he buys our product, he shall not lose, for we will hold up the market for him at all hazards. In this is the keynote of our success. With combination every grower is assured that he will get the average price of the season for his crop, and where is the grower who would not be willing to sell on these

terms, and thus be relieved of the worry and anxiety of trying to determine when he ought to sell?

This is an era of trusts and combinations. The principle is sound and it is here to stay. By combination great economies are secured and the cost of producing and transferring commodities from the producer to the consumer is greatly lessened. To the fruit-growers of California this principle will prove of untold value in the future. We have in this great State the garden spot of the world, where fruits of every kind can be grown to perfection and in the greatest profusion. Our sole aim from now on should be to apply this principle of combination in all our affairs, so as to secure the greatest economy in production and in placing our products on the markets of the world, while at the same time supplying fruit of the highest quality, put up in attractive packages and packed with absolute honesty. We may then hope that in addition to our splendid home market we will, with the opening of the Nicaragua Canal, be called upon to send out hundreds of shiploads of fruit, and reach countless millions of people whose demands will in time require the products of fifty acres of orchard and vineyard for each acre now in bearing in California. Let us not, therefore, as producers seek to destroy the principle of combination, but rather let us use that principle to enhance the value of our own products, so that we can afford to pay an enhanced price for what we buy and have a margin left with which to improve and extend our industries. This, I am convinced, is the line of least resistance and the one that will yield the best results. We should, however, advocate and recommend to our lawmakers a wise control and supervision of trusts and combinations, to the end that we may preserve to our use all the advantages of combination, and at the same time protect the people from the gross abuse of the principle. I thank you for the patience with which you have listened to me.

DISCUSSION.

MR. NAFTZGER. There is one point upon which I would like Mr. Kearney to say something more. He has pointed out to us in his address, in a very strong and clear manner, the advantages of organization and every point of it. Every statement in that address has my unqualified approval, after seven or eight years' experience in efforts toward coöperation. He has pointed out the dangers and evils in having those extralogical features in it; that is, the element of the speculator. I am after the speculator—that is, to get him out where he belongs. His primary interests are to destroy or prevent the organization. I do not want to take him into the house when we do not think he is a useful member of society. I do not want to take him into the house and

support him. I will ask Mr. Kearney (but not to go into the matters that are private with him), why in his judgment shouldn't the packer or speculator, whatever you call him who is not a producer, why should he not be eliminated with one stroke?

MR. KEARNEY. Mr. President, that is a very important question and one that I have given a great deal of thought to. I have advocated eliminating the packer, and confess to you quietly that I did so to bring him to terms. I believe that it is desirable for the grower to use the skill and business ability of the packers and commission men when that skill and that ability can be used under your own control. I think the packer in himself and the commission man in himself is a very necessary part of the machinery of this business. I do not say the speculator, but the packer and the commission man; and it is always desirable to get the best details available, but they must be under your control. I confess that I am not yet prepared to say to the growers of California, "Do your own marketing." I want to see them develop a type of business ability as high as any in business circles. Some may have already developed it. My view is only as to the raisin industry, and I do not want to say anything that will reflect on any other branch of the business. From what I have seen of the raisin-growers as a class, I am not yet prepared to give them a diploma as business men. [Laughter.] And I think it is well for us, when we can, to get the best business men we can reach employed in our business and get them to do that part of it first. We will do the growing.

MR. NAFTZGER. Mr. Kearney stated in his address that the success of marketing the crop and the success of sustaining the prices of the raisins of California were due to the fact that the Raisin-Growers' Association said to the trade—the legitimate trade—"We will sustain the prices for you." The packers didn't say that. The trade did not depend upon the packers or the commission men or middle men to say it, but the trade depended upon the association. Now, why didn't the growers go straight to the association? It is a well-established rule by which the association was able to do this thing. The association controlled the product, therefore the association could sustain the market, and, as Mr. Kearney has said, it is not so much the question of price. We have found that in our business it is not so much as to the price that the dealer pays for the product, as it is that he knows that to-morrow the competitor will not cut the ground from under him. He knows the association will not permit the goods to be sold cheaper to-morrow than to-day. Mr. Kearney said, "When you have got control of the market the dealers will fall over each other to find you." Why don't they let the trade find you instead of the business men? Another point is this: I agree with Mr. Kearney on the question of business ability, but don't you think that the business ability that has been shown by the manage-

ment of the Raisin-Growers' Association of Fresno is equal to the best ability of any packer connected with it? Don't you think the ability that Mr. Kearney and the members have shown proves them to be the peers of any men in the business? Why don't they manage the organization at the other end of the line instead of handing it over to the middlemen? I don't mean this as a criticism; I am talking for the things that will go to the permanent prosperity of the organization. In my opinion the ability of Mr. Kearney and his associates will force these men out of the way and put the goods straight into the markets and cut clear of these commissions.

MR. KEARNEY. I don't think there is much difference between Mr. Naftzger and myself on this proposition. I take the ground that we should fit ourselves to do these things well before we undertake to do them at all. We are progressing in our raisin business; we have a difficult problem to deal with. We started out with the proposition of winning over to the combination men who had failed previously to combine and who had no faith that they could succeed; and those men had been, through previous drought, supported and helped by the packers. Money had been advanced to them, and the people had come to lean upon the packers for support. It is not wise in my judgment to come right out boldly and depend upon yourselves, but get what you want gradually, and we have been doing it gradually. At first we made a trial, and I solicited the packers to come out and help us; and I say that without the assistance of the packers we could not have got along. We strengthened ourselves and put up the price on raisins the first year, and the grower had a little money to help pay off some of his debts, and we felt stronger. Then we made another trial with the packers the next year, and that was more stringent than the previous year. We made them agree to buy those raisins and pay our price, no matter what it was—whatever price we put upon them. We insisted upon their agreeing to it, and they did it. That was a step in advance of the previous year. We propose now to go to the packers and say to them, "You know there is a great deal of friction between us; this man is underselling you, and you know you are not making a dollar out of it." Then we will say, "You have got to come in with us if you want to make money." And we propose now to ask them to organize and combine their plants, and with the assistance we will render them we propose to buy a half interest in that business. Is not that a step in advance?

QUESTION. Why not buy it all?

MR. KEARNEY. I believe that the cautious way is the best way. I think we will get there that way quicker than to make a plunge and get into the mud. I believe you had better have the packers and commission men always under your control, but use their skill and ability

to market this product for you until you get so strong that they see that they are of no use and they will find something else to do.

QUESTION. Are there any coöperative packing or seeding plants in Fresno, and what percentage of the business do they do?

MR. KEARNEY. I think there must be some twelve or fifteen coöperative packing-houses erected in Fresno by one selling agency, and that selling agency also has a connection with a seeding plant; in some way they are supplied with seeded raisins. The selling agency, I think, is almost equal to any other agency in the sale of raisins. They have done good work this year and last; and I think the results of their labors as selling agents are quite satisfactory to the members.

MR. NAFTZGER. I am not quite satisfied yet. I do not object specifically to the packers as purely packers. I said in my address that the local association makes any arrangement it pleases about packing—lets it out by contract or pays a percentage, or any other way to suit themselves, and they are responsible for the result. A poor pack is a poor price. My objection is where the packer is the selling agent; that is my objection. It seems to me to be the correct policy that no man can buy our product cheaper than any other man can buy it. The price is alike to both men, with no privileges or dividing of commissions. The buyer looks at the goods and buys them for what they are and pays his money, and he knows very well that that brand will not be sold at any price less than he pays for it. I am glad to know that Mr. Kearney believes that principle to be right, but I believe in getting to this thing now by one jump instead of two jumps.

SENATOR JOHNSTON. I take pleasure in the remark of Mr. Kearney, where he said he was not yet ready to give the growers a diploma on their merits as good business men. I do not agree, however, with Mr. Kearney in his organization plan; I do not agree with my friend on the left [meaning Mr. Naftzger] by taking this in one jump. We must educate ourselves and our co-workers and make their prices such as the market demands, and then there will be no trouble about having consumers. I am not prepared to go into the organization with the middlemen; that is the last thing I will agree to. I think the worst thing for the growers of California will be an organization of that kind. If you want the goods of California there is but one man to go to and he fixes the price and we must pay it. The more shippers and packers in the country the better it is for the fruit-grower. I am not prepared to go into an organization of that kind, especially when they retain control. We should not attempt to bring the association of growers and packers together, but the association of growers should control the crop and handle the business. So far as the raisin-growers are concerned, they will make contracts with the packers. You want to get the business in such a shape that there will be no disintegration. The more

cutting and slashing you have the more danger you are in. The grower can always set up any number of packing-houses upon a month's notice; he is never at the mercy of the packer. I desire to use the skill and ability of the dealer to market our fruits when he will do it according to our views and in our interest. That is all the point I wish to make.

MR. NAFTZGER. So do I, but as a rule he doesn't. My theory is, instead of enabling the speculator to build and own the packing-houses, let the association make that percentage of profit and do its own packing. I am driving at the proposition that the producer pays the revenue every time. The producer has to pay all the bills, all the percentages, all the profits for all the packing-houses and for all the skill that is employed. Now, why don't he employ it directly and pay simply what it is worth in the markets without the speculating profits in it?

QUESTION. Does the Southern Exchange do it that way?

MR. NAFTZGER. Yes, we cut them all off at the neck.

QUESTION. What does it cost to market your fruit for two successive years?

MR. NAFTZGER. It has cost us about three per cent on the sales. No other product in California has been marketed at three per cent of the cost.

MR. KEARNEY. What percentage of the crop of oranges of California has Mr. Naftzger's association got under its control, and if it had the whole of the crop of California under its control wouldn't it put the price of oranges much higher than they are to-day?

MR. NAFTZGER. Well, I suppose I am expected to answer that. In the first place, in the beginning of our organization we had approximately ninety per cent of the crop, but as I told you yesterday, we had it by including all sorts of heresies, isms, and idiosyncrasies. We had some of the leading packers and shippers in Southern California in the association. They were in the organization, but it would not work; it had too many bosses and too many side issues, and too many beliefs and opinions. I want to emphasize what Mr. Kearney said about concentrating the power and authority: Don't imagine that every fellow can have his own way. When we cut off those side issues we dropped down suddenly in our control of the crop, because we undertook to put it on a business basis; we are now steadily increasing our holdings.

MR. KEARNEY. What percentage do you control now?

MR. NAFTZGER. We have now about thirty-five per cent.

MR. BERWICK. Why, Mr. Naftzger, if you are so successful, is it that sixty-five per cent still stay outside of your association?

MR. NAFTZGER. Well, I thought I had answered that when I said we made a market for the sixty-five per cent to get their ready money. We have made a market for their fruit and they sell it.

While we are getting more money, the fellow that is hard up and wants ready money will go and make his deal. I am simply talking about the success so far as we are concerned in the association. We have only been operating for three years on the present plan, and that is, selling our goods delivered. I say this: that we are taking care of the people that are with us better than they were ever taken care of before, and getting more money for their oranges than was ever gotten before in the history of the orange business. We might possibly by some measures increase our holdings, but do not think we could do it like Mr. Kearney has done in the raisin business. We do not want to give any one control of our business.

PROF. CHILDS. Those of us who have been trying to organize the dried fruit industry have feared this. We have thought that the raisin people were right—that in order to control the prices of cured prunes we must have at least a combination of seventy-five per cent of the producers; because in this valley we have several associations and they have tried to control the prices of prunes, but the outsiders have controlled the prices.

Printing Mr. Kearney's Address.

MR. NAFTZGER. It seems to me that Mr. Kearney's address is so valuable in its suggestions that it ought to have a permanent place in print. That address has a value which I think would be a prominent and effective weapon to aid local organization.

On motion, a committee was appointed, consisting of Judge Lewis, Mr. Naftzger, and Mr. Kearney, to report in the afternoon on the cost of printing said address in pamphlet form, for distribution before the adjournment of the convention.

Recess was then taken until 2:30 o'clock P. M. of this day.

AFTERNOON SESSION—THIRD DAY.

THURSDAY, December 14, 1899.

At 2:30 o'clock P. M. the convention reassembled. President COOPER in the chair.

NEW FRUIT CREATIONS.

ESSAY BY LUTHER BURBANK, OF SANTA ROSA.

The time is not far back when *perseverance* was the usual price of success, but we now live in a time of great activity and with rapid and astonishing changes in every department of life, which makes *adaptability* of even more importance than perseverance. No one can doubt that these facts apply to horticulture, and especially to fruit-growing, for in these employments most rapid strides have been made during the last ten years of the passing century. The fruit-grower of to-day must have the ability to adapt himself to new methods, new fruits, and new markets. By means of cold storage and rapid transit, the finest fruit from every land can be found in any large market both in and out of season, for while the fruits of one hemisphere are first waking from their winter sleep, in the other the summer sun has done its work and the ripened fruits are on their way to distant markets.

With the world as a market, competition is keen, and only the best fruits in the best condition will pay; fortunately, it generally costs much less per ton to produce large, first-class fruit than to produce the poorest and meanest specimens that are ever offered. Small fruit exhausts the tree much more rapidly than large fruit, as one pound of skin, stones, and seeds represents at least ten or twelve pounds of fruit pulp; it will thus readily be seen that improved varieties, which produce uniformly large, fine fruit, are more economical manufacturers of fruit, and also that the product is always more salable; the difference in many cases will decide between success and failure.

The tree which needs a great deal of pruning to keep it in proper form or vigorous health should be replaced by one which has a better habit of growth, for every ton of wood taken unnecessarily from an orchard represents at least as much in weight of fruit. What a fearful tax this alone is on the fruit-grower—enough wasted here also to make the difference between success and failure.

Many varieties have two or three superior qualities, but woefully lack in many others; some have a very weak and imperfect root system, no matter on what stock they may be grafted; others have scanty foliage, which readily falls a prey to drought or to fungous or insect enemies. Others are especially subject to blossom blight by late spring frosts, parching winds, or rain; still others, though bearing the best of fruit, are so sparing of it that they are outstripped by others of less value. Numerous other faults are too well known to all observing fruit-growers.

The fruit-grower of to-day is strictly a manufacturer and should have the latest and best improvements. The manufacturer of pins and nails would not long tolerate a machine which failed to produce pins and nails every other season, or one which produced even occasionally an ill assorted, rusty, unmarketable product. And revolutionary as it may at first thought appear, there is no good reason for permanently producing poor fruit, for in time new trees will be produced which will produce good fruit with the utmost regularity and precision. Of course, there never can be one variety which will be the best for all purposes, but it is perfectly possible to produce varieties which, for their own special use, can be relied upon to produce full crops of the best fruit without fail; all this must be done by careful selection and breeding.

With our present knowledge more advancement can be made in ten years than could be obtained in as many centuries by the usual custom for ages past of selecting chance seedlings as they appear here and there. Professor Bailey truly says: "Intelligent selection, having in mind an ideal form, is man's nearest approach to the Creator in his dealings with the organic world"; and Darwin, that "The key is, man's power of accumulative selection." Both might have said combination *and* selection, for in practical field work it is first necessary to combine the best qualities of two or more species or varieties before selection can ever be of much value. When the combination has been judiciously made, the work of centuries can be done in as many years; and with the further knowledge that when an organism is removed from its old restraining agencies and given every advantage in the new ones, all variations have an opportunity of asserting themselves, the work becomes still more simplified in the hands of the operator.

By the application of these well-known scientific facts to practical, everyday field work, results have lately been obtained which are nothing less than astounding, and we may expect to see as great advancement in the production of horticultural wonders as has been seen in the mechanical and chemical application of electricity.

By request I here discuss the merits and defects of some of my own fruit productions and introductions. Among the first plums which were imported and introduced from my establishment, Abundance, Burbank, Sweet Botan, and Satsuma are the best known.

Abundance and *Burbank* thrive almost everywhere, generally resisting spring frosts while in bloom. *Burbank* is now grown extensively in every country where plums are grown and in some places where no other plum will thrive. In South Africa, Australia, and New Zealand it is planted by the hundred thousand and is generally spoken of as the most reliable and profitable of all plums for canning, shipping, and home use. *Abundance*, though not of as high quality, gives universal and unbounded satisfaction.

Sweet Botan, though not as well adapted to general culture in all places, is grown for home use and for near markets far and wide.

Satsuma, though nearly or quite a failure in some places, is a grand success in others as the standard shipping, canning, and jelly plum.

All these, except the *Burbank*, are greatly surpassed in productiveness, size, beauty, and quality by the newer hybrids and crossbreds produced since 1890, and mentioned below:

Giant Prune. This was introduced in 1893 as a market and shipping variety, but it has also proved to be one of the very best of canning plums, and is rapidly coming into prominence, not only in California, but in the Eastern and Central States and the Southern Hemisphere. The tree is a good grower and constant and abundant producer.

Wickson. Introduced at the same time, is now universally grown, and wherever offered in any market has a readier sale and brings a higher price than any plum ever before known. Growers who invested in this variety have made large profits, as it has found a ready sale at prices never before realized for any plum.

Gold. Sold to Stark Brothers, Louisiana, Mo., and introduced the same season, was recommended as the largest of the hardy varieties for the cold Northern States, and it has proved hardier, larger, better, and more valuable than claimed. As better varieties can be grown in our mild climate, I do not specially recommend it for California.

Splendor. Introduced by the same firm. In some places this has not met with favor, on account of its having to be picked instead of dropping when ripe like the *Petite* prune, and for this very reason is prized by others, who claim that the difference in expense of gathering is more than made up by the better product. It shrinks slightly more than the *Petite*, but even then runs larger and is of much better quality for cooking. The tree is a heavier and more regular bearer, but has now been eclipsed by the *Sugar* prune in productiveness, earliness, size, flavor, sweetness, and value of product when cured.

Shipper. Sold to and introduced by John Lewis Childs, of New York. It is particularly valuable on account of its firm flesh; is a large, handsome, apple-shaped plum, ripening at mid-season.

Delaware. Sold to same party. It is a very dwarf plum in tree but not in fruit, which ripens very early and is large, delicious, and abundant. No better plum is to be found for early home use.

Hale. Sold to J. H. Hale, of South Glastonbury, Conn. A tremendous bearer. The fruit is of size, form, color, and quality of Imperial Gage. Stone much smaller, one of the Japanese varieties.

Apple. Mid-season, extremely large. Stem, form, color, and general appearance of an apple. Rich reddish purple; flesh firm, pale red, with marblings of pink, rich, high flavored, sweet or subacid; tree vigorous and productive. One of the best for shipping or any other purpose.

America. Of the same parentage and similar to Gold, but five or six weeks earlier.

Chalco. A cross of Prunus Simoni and Burbank. The fruit, which ripens just before the Burbank, is large, flat like a tomato, reddish purple, sweet, firm, fragrant, with yellow flesh and small seed. Simoni will never be grown for any purpose where this is known, for in every possible respect it is its superior.

Pearl. A seedling of the French prune, much larger, skin white; flesh semi-transparent, very sweet and aromatic; about a month earlier than the French prune, but more difficult to cure. Especially valuable for home use.

October Purple. Introduced by Hoyt's Sons, New Canaan, Conn. It is a very productive, deep purple plum of the Japanese type, ripening very late in the season; of most excellent quality and a good shipper.

Sugar prune, Climax, Sultan, Bartlett, and Shiro plums, all introduced last season, need no special mention at this time, as they have yet to make their record outside the confines of my own grounds. I can only add that they are the cream of all the hundreds of thousands of the best hybrid and cross-bred plums with which I have been laboring constantly for the past sixteen years. I do not say that better ones will not be produced, for I have no doubt there will be; but at present I would plant none but these. As I am requested to come here to answer your questions regarding them, I need say no more, and can only hope that they may prove to be even more valuable to the grower, shipper, and consumer than have been those which have already left my hands to receive the test of various soils, markets, and uses, and the greater test of time.

It has been well said that it were better for a man that a millstone be hung around his neck and that he be cast into the sea than that he should introduce a fruit or flower which should prove to be of no value. In the introduction of a new fruit or flower no one who has not been through the experience can fully appreciate the sense of responsibility, and no one can more deeply lament a failure than the introducer.

The reception given my own introductions of the past leaves no great fear of the future in that respect.

It would take too much time even briefly to describe the berries, quinces, and other fruit and nut trees which originated and have been sent out from my grounds since 1890.

OPUNTIA FICUS-INDICA.

Prof. E. E. SMITH, of Palo Alto, exhibited specimens of the plant and fruit of the cactus *Opuntia ficus-indica*, and explained its economic importance.

REPORT OF COMMITTEE ON PUBLICATION.

JUDGE LEWIS, chairman of the committee on the publication of Mr. Kearney's address, reported for the committee, recommending the printing of 20,000 copies of said address in pamphlet form.

The report of the committee was adopted, and sufficient funds subscribed to defray the expense of printing, etc.

THE ASSOCIATE CALIFORNIA FRUIT EXPORTERS.

Report of the Committee on Legislation, Etc.

B. N. ROWLEY, of San Francisco, chairman of the Committee on Legislation, Inspection, and Quarantine Laws of the "Associate California Fruit Exporters," submitted the following:

Mr. President, Ladies and Gentlemen of the Convention:

At the request of your Committee on Program, I herewith present a brief report of the labors of the Committee on Legislation, Inspection, and Quarantine Laws of the "Associate California Fruit Exporters."

This association was formed for the purpose of investigating and overcoming, if possible, some of the difficulties met with both at home and abroad by the exporters of California cured fruits. As you all know, California cured fruits have now become quite popular in England and Continental Europe. The first direct shipments of any consequence went forward in 1894, consisting chiefly of apricots. The excellent quality of the fruit shipped attracted very general attention, and the demand from Europe widened, and prunes, pears, and peaches were largely added to the list which went forward in 1895. In 1896 the demand showed a material increase, and heavy direct shipments were made. In 1897 upward of 1,000 carloads went forward. In 1898 the short fruit crop in California, combined with the close inspection by German officers, curtailed the export movement in all lines except prunes, the latter being exempt from the attention of inspectors.

During the six months commencing June 1 and ending December 31, 1898, export shipments from the Santa Clara Valley alone aggregated 8,580,000 pounds, or 429 ten-ton cars, of which about 7,000,000 pounds were prunes. This fruit went forward in car lots on through bills of lading, and was distributed in England, Germany, France, Belgium, Holland, Scotland, Denmark, Finland, Norway, and Sweden.

The export field for California cured fruits has widened materially, and the demand is on the increase. The shipments for the season of 1899 will exceed in quantity any year since the export business began. Early in 1898 the German government, at the request of the Agricultural Society of Berlin, began to place restrictions on the importations of fruit from America, claiming that both fresh and cured fruit from this country was infected with San José scale and other insect pests, and that the free admission of this fruit into Germany would place the fruit industry of that country in imminent danger. Rigid inspection was therefore had of all shipments arriving at German ports and frontier stations, and upon a few shipments of California cured unpeeled pears there were found, as a matter of record, specimens of San José scale—dead of course, but San José scale nevertheless. This discovery led to a temporary exclusion of both fresh and cured fruits, but a vigorous protest on the part of our Government finally raised the embargo. The German inspectors, however, persisted in making an examination of all fruit shipments, particularly those from California. This caused California fruit-shippers a great deal of trouble and annoyance and some loss of money by having to reship all fruit held up by the German inspectors to some other country where it might be sold. The bulk of such shipments was disposed of in England.

The unsatisfactory condition of affairs caused the large San Francisco exporters to call a meeting for the purpose of devising ways and means to meet, and overcome if possible, these serious difficulties. The first meeting was held on Tuesday, December 13th, in the office of Messrs. Castle Bros. There were present at this meeting representatives of the following fruit-exporting firms: The J. K. Armsby Co., Porter Bros. & Co., Rosenberg Bros. & Co., Castle Bros., California Fruit Evaporating Co., Johnson-Locke Mercantile Co., and Guggenlime & Co. Mr. J. A. Filcher, of the California State Board of Trade, and B. N. Rowley, of the "California Fruit-Grower," were also present. This meeting resulted in the organization of the Associate California Cured Fruit Exporters.

After a very general discussion of the entire situation, the conclusion was reached that the German government was following very closely in the footsteps of the fruit quarantine inspectors in America, and particularly in California, for it is well known that the latter had been keeping a very close watch upon infected trees and plants to guard against the introduction of dangerous insect pests into this country. Hence, it was thought well to commence the work of reform at home by the appointment of a permanent committee, which consisted of B. N. Rowley, C. C. Kinsey, and M. Loewenstein.

This committee was instructed to undertake the work of conducting a more thorough investigation and to assist in perfecting the fruit quarantine laws of this State, and to render aid in all matters pertaining to fruit legislation and inspection of fruit intended for export trade. This committee held frequent meetings and sought the advice of Mr. Alexander Crow, the present Horticultural Quarantine Officer, B. M. Lelong, Secretary of the State Board of Horticulture, and many others prominently identified with the fruit industry of California.

After consulting with the San Francisco commission merchants and fruit receivers, this committee arrived at the conclusion that it would be impracticable, if not impossible, to undertake the inspection of fresh fruits prior to their being shipped to foreign countries, to say nothing of the task of inspecting cured fruit before shipping. Thus far the difficulty in Germany and Switzerland has arisen over fresh apples and cured unpeeled pears shipped into those countries.

Fruit, fresh or cured, except prunes, arriving from America at any German port is inspected, and if found infected with scale, dead or alive, is refused entry, and ordered reshipped to some other country. Such consignments have heretofore been generally reshipped to England and there sold. Fully recognizing the importance of retaining the German markets for California cured fruits, and at the same time recognizing the legitimate action on the part of the German government in its efforts to keep out injurious insect pests, as the German laws and methods are perhaps less stringent than our own, this committee sought to reach the root of the evil by as direct a route as possible—that of destroying the home market for scaly infected fruit, thereby rendering it necessary for the grower to have his orchard inspected, and making it obligatory for him to rid his orchard of scale and other insect pests.

With this object in view the committee had prepared a bill, which was submitted to several competent attorneys; besides those connected with the fruit quarantine and inspection departments of the State Board of Horticulture, and after receiving their approval, this bill was placed in the hands of Assemblyman Arnerich, and became known as Assembly Bill No. 158. The committee made several trips to Sacramento, and was successful in securing the passage of the bill through both houses of the Legislature.

The committee desires to thank at this time the Hon. Alden Anderson, Speaker of the Assembly, Mr. Ralph Hersey, Manager of the California Dried Fruit Agency of San José, Mr. B. M. Lelong, Secretary of the State Board of Horticulture, Mr. J. A. Filcher, Manager of the State Board of Trade, and others, for their earnest coöperation and assistance.

We met our defeat at the hands of Governor Gage, for, when the bill which had been passed by the Senate and Assembly reached the Governor late on February 24th, his Excellency saw fit to promptly return it to the Assembly on the next morning, with his disapproval. The last paragraph but one in Governor Gage's lengthy veto reads as follows: "Something on the lines of Assembly Bill No. 158 should receive careful attention; and I trust that a law may be framed covering all its beneficial features, without the radical objections herein mentioned, and that you may take the bill up and act upon it as an urgency measure."

The committee acted upon the Governor's suggestion and prepared a second bill, which was so much like the first one that it was difficult to tell one from the other, with the exception that the second bill, known as Assembly Bill No. 1003, provided that the Governor should biennially appoint, etc., while the original bill, No. 158, provided that the State Board of Horticulture should biennially appoint. This change in the bill virtually made it an Executive measure, and it went sailing through the Assembly and Senate as an urgency measure, and again reached the Governor two days after its introduction, and in time for his official signature. But for reasons not necessary to detail at this time the bill was never signed. Thus the labors of this committee and its friends in behalf of the much needed legislation for the better protection of our fruit industry were consigned to the Governor's waste-paper basket.

The object sought through the labors of the committee was to prevent the shipping of scaly and infected fruit out of the county where grown, and in this manner prevent the transportation of insect pests from one part of the State to another, and at the same time destroy the market for wormy, scaly fruit. This would naturally compel growers with infested orchards to commence the cleaning-up process, and in time rid their several orchards of scale and insect pests.

It was the further intention to cause the inspection of each orchard in the State by competent State officers, who would make and preserve official records of all orchards inspected, and issue certificates to all owners of orchards found free from scale, and at the same time furnish a full, complete report to the office of the State Board of Horticulture as to the condition of the various orchards, variety of scale and other insect pests discovered by them. This record was to have been kept in such a form as to be available for the use of buyers of fruit, both fresh and cured, for export purposes, and reports would have been issued to the large exporting houses from time to time, furnishing them with information whereby they could with safety buy fruit and export it, knowing that upon its arrival in Germany, or elsewhere, it would not be held up as scale-infected. By this method the trees in the orchard would have been inspected instead of the fruit, as at first suggested, it being considered a much simpler and more practicable way of arriving at the solution of the insect-pest problem; for, if the trees in the orchard are free from scale and insect pests, the fruit would certainly be sound and perfect and free from scale, and buyers would take no chance in purchasing cured pears or other fruits from such inspected orchards.

This committee is of the opinion that the matter should be given careful consideration by the members of this convention, and such action had as will bring about this very desirable end.

On motion, the report was received, and the thanks of the convention tendered the committee.

DANGEROUS PESTS QUARANTINED BY THE STATE BOARD OF HORTICULTURE.

"Stopped at the Threshold."

ESSAY BY ALEXANDER CRAW, STATE HORTICULTURAL QUARANTINE OFFICER.

MR. CHAIRMAN, LADIES AND GENTLEMEN: Of the steamers and sailing vessels that arrived in the port of San Francisco from foreign countries since my last report to the State Board of Horticulture, 122 had trees, plants, or fruit. They were from China, Japan, Ceylon, Australia, New Zealand, South Sea Islands, Philippine Islands, Hawaiian Islands, Central America, and Mexican ports. Imports consisted of:

314 cases and crates of trees and plants.

573 boxes and bundles of trees and plants.

149 loose lots of trees and plants.

864 crates and sacks of pineapple plants for Florida.

10,809 boxes of limes.

3,054 boxes of Japanese Unshiu oranges.

100 crates and 10 boxes of oranges from San José del Cuba.

2,360 boxes of mangoes, alligator pears, etc.

2,367 crates of pineapples.

All fumigated with hydrocyanic acid gas.

3,302 fruit trees and ornamental plants were destroyed, as they were infested with insects new to the State.

It is not necessary to enumerate the destructive insect pests that have damaged the orchards and perplexed the orchardists of California, but it is not generally known that nearly if not all of them are introduced species. Less than three decades ago, the orchards and gardens of the State were very free from insect pests; such an apparatus as a spray pump was almost unknown; and a fumigating outfit had never been heard of. The Spanish padres saw the possibilities of our soil and climate for fruit culture, and experimented in a small way on lands adjoining their Mission buildings. Their young plantations were nearly all raised from seed, and were protected from the roaming herds of cattle by hedges of opuntia, a species of tall-growing cactus, with flat spiny leaves, bearing edible fruit, known as prickly pears, which were much relished by the Indians of the southern counties. Some of the Missions had more pretentious barricades for the protection of their trees and vines in well-built adobe walls. These orchards were thrifty and clean. Some of the more enterprising pioneers who came to California before the "days of gold" planted trees as a business proposition, and these, like the Mission trees, were nearly all seedlings or propagated from the Mission trees.

With the change of government and the rapid increase of population, through the discovery of gold, a good home market was created and orchard planting made rapid strides. The enterprising Americans determined to have and grow the best fruits known, so imported trees and plants from other countries, and with them came the pests. The natural enemies of the latter were left behind in their native countries or died on the way, so the scale bugs and other pests had a clear field and spread rapidly. Unfortunately for the good name of California, some of the pests were first scientifically described and named here, and popular names were given that conveyed the impression to outsiders that the insects were natives of this State.

The State Board of Horticulture was created by an Act of the Legislature to look after the fruit interests, and the Governor was given the power to appoint the members. This Board was given authority to make regulations for the purpose of preventing the spread of fruit tree pests, and a subsequent Act gave it the appointment of an officer to attend to quarantine work.

I will briefly give you a list of some of the pests that have been stopped at the threshold during the time that the Board has honored me with this appointment.

Each of the fruit-growing counties, as you are aware, has the power, through its Supervisors, when petitioned, to appoint a County Board of Horticulture that works in conjunction with the State Board in preventing the introduction of infested trees into its districts by rail. Where the county officers have received the support of their Supervisors, good work has been done, and the courts have sustained us. Ninety per cent more money has been spent in trying to stamp out pests that were formerly introduced into the State than has been expended in keeping others out, and then we do not compute the enormous damage and loss caused by their presence.

When the quarantine regulations were enforced, various interests and supposed rights came in conflict with them, and for a time we worked along paths not strewn with flowers. Even now we run against bellicose individuals who think we have no right to interfere with anything they may bring. They finally conclude that we have the better of the argument, and retire, although not always gracefully.

One of the most amusing incidents in my work was upon the arrival of an old Scotch lady, who had been to Scotland on a visit and came back by way of the Northern Pacific and steamer from the Sound. When she came down the gang plank of the steamer, I noticed something familiar and remarked that I wanted to look at her plants. She was delighted that they should so soon attract attention upon their arrival, and began to explain to me how much care she had bestowed on them on the long voyage across the Atlantic and the great American conti-

ment. They were in pots and one was just then coming into bloom, so there was no question regarding its identity. She was terribly shocked when I informed her that I would have to destroy them. She pleaded that she would keep them in her own garden. We have all the varieties of thistles we want, so she lost her pets and insinuated that I had no patriotism. The Scotch thistle was introduced into Australia and overran that country. Laws were enacted to have it stamped out, but the thistles are there yet.

In referring to the various pests, I will refrain from giving you the scientific names of each and give you the popular names. If, however, you are in doubt regarding any of them, I will be pleased to give it also.

Australia is the land that gave to California, Cape Colony, and Portugal the terrible "cottony cushion scale" (*Icerya purchasi*). We are also indebted to it for the destructive "red scale" (*Aspidiotus aurantii*) of the orange. From that country and Samoa came orange trees and fruit infested with small "snow scales" (*Chionaspis citri*), a species that is reported to have been the cause of the decay of the old orange trees in Louisiana. The trees and fruit that arrive infested with this scale are always destroyed. I will here state that trees and plants infested with pests not existing in the State are destroyed or deported. If the stock is infested with insects already found in California, it is thoroughly fumigated with hydrocyanic acid gas, unless the insects are of a serious nature and not found in the district to which the stock is destined. All those I mention having quarantined have been destroyed.

A long scale (*Lecanium longalium*), belonging to the same family as the "brown apricot scale" (*Lecanium armeniacum*), and one like the common black scale, but jet black and smooth, came from Australia and Hawaiian Islands.

A shipment of apples came from Tasmania, via Australia, that were attacked by a small beetle larvæ that burrowed through the pulp under the skin. Two loads of four-foot pine wood were piled about the boxes, over all was poured coal oil, and soon we had quite an apple bake. Oranges from the Island Continent that were attacked by a skin fungus were also disposed of.

A pest of a more conspicuous nature came from the same country. This was a flying-fox. It measured fourteen inches and had a wingspread of three feet two inches, and belonged to the fruit-eating bats. When it arrived it was enjoying a breakfast of ripe pears and banana. In countries where they exist, great expense is incurred in protecting soft fruit from their attacks. They live in great colonies during the daytime, suspended from the branches of trees, and at night they sally forth and are known to fly for over twenty miles in quest of fruit. That

flyng-fox and four others that afterward came from China were treated with sufficient chloroform to stop all further desire on their part for such toothsome food as ripe fruit. The owners, of course, tried to prevent such summary disposal of their bats.

Japan, like Australia, has furnished us with several pests that have caused orchardists to expend large sums of money in keeping their trees in a healthy condition. Besides the citrus "snow scale" (*Chionaspis citri*), a very serious small white-armored scale (*Diaspis amygdali*) is altogether too frequently found upon trees and plants from that country. This is a pest we can take no chances with, owing to the fact that the best known tree washes of treble strength will only kill seven per cent of them. Orchardists will understand that very few fruit trees will stand such a strength, and the result of such an application is almost as destructive to the trees as the scale. We have found this scale upon the following trees and plants, which were destroyed. I will give the names of the trees in the order, as to the extent, in which we have found them to be infested: Cherry, plum, peach, persimmon, tea bushes, and walnut, besides "sago palms" (*Cycas revoluta*) and a variety of other ornamental plants. The Japanese are experts in the manufacture of artificial cherry blossoms, and to add to the deception they use fresh cherry twigs, upon which we sometimes find live scale. The only danger, of course, from such imports would be the use of the artificial flowers with decorative plants that could be infested in this way.

The legal fight against the importation of 325,000 orange trees from Tahiti that were landed at San Pedro is well known. The "mining scales" (*Howardia biclavis*) infesting those trees withstood five fumigations with hydrocyanic acid gas; also two treatments by dipping in strong insecticide, and the trees were finally ordered by the Superior Court of Los Angeles County to be burned. It would be impossible to destroy this pest if it ever obtained a foothold in the orchards of this State. We have destroyed trees and plants from Southern Mexico that were infested with this scale.

A San José gentleman, who has a coffee plantation at Soconusco, Mexico, near the border of Guatemala, arrived by steamer in San Francisco and brought a bundle of cuttings of "cape jasmine" (*Gardenia florida*). Upon examination I found these cuttings to be infested with the "mining scale." He brought them to propagate in San José in order to raise more plants, as he was afraid his large bush was going to die. The cause of the plants' sickly condition was pointed out to him and his cuttings were burned.

A tea-grower in Ceylon wrote and forwarded a dry sample of a twig from one of his tea bushes. We found it badly infested with the "mining scale." He reported that half of his plantation was attacked by this scale and the yield of tea was reduced in that portion over half. Two

club-like structures in the last segment of this scale distinguished it from all other known coccids.

Three species of "fringed scale" (*Astero lecanium*) came from Central America and Honolulu. This scale, when located on the wood, causes a depression and gives the tree a rough, warty appearance.

A few years ago a very pretty red wax scale was found occasionally on plants from Honolulu, introduced there from India. It must be more numerous about Honolulu now, for we find it on a great variety of plants. The evergreen wreaths with which the Hawaiians decorate their departing friends are also infested, so we never allow such decorations to pass. A lady passenger was detected by a customs officer trying to smuggle a plant ashore under her cape, and in explanation she informed me that it was a fern she got on the top of the mountains. When I examined the plant I accused her of misinforming me regarding where she obtained it. She inquired how I knew, so I pointed out the "red wax scale" that is only found near Honolulu. With a blush she acknowledged it. Her plant was destroyed.

I desire to publicly express the indebtedness of the State Board of Horticulture to the United States customs service of San Francisco for their valuable assistance in preventing the landing of any trees, plants, or fruit from foreign countries. Nothing can now be smuggled in the baggage or taken ashore during the day or night unless an officer of the Board of Horticulture is present. An amusing incident occurred on board a steamer from the tropics. A member of the crew tried to pass a pineapple and was stopped at the foot of the gang plank by a customs inspector and ordered to take it on board again until it had been examined. He became abusive and said he would take the pineapple ashore and the inspector could not stop him. He returned to the head of the gang plank, peeled the pineapple and ate it, then triumphantly marched ashore.

From Japan comes a "white wax scale" belonging to the same genus as the "red wax scale" in India and Honolulu. It also is a very general feeder, as we find it on deciduous trees, citrus trees, camellias and other ornamental stock. From Japan came a long, narrow, dark "thread scale" (*Ischnaspis filiformis*), also a "double scale" (*Aspidiotus duplex*); the latter attacks orange trees and other plants.

Two very near relatives of the so-called "San José scale" came from the same country, and it may be that we received the latter scale from Japan in the early seventies, although it is known to exist in Chili.

From the land of the Mikado came cherry trees in pots, the young wood of which was completely covered with bluish-gray aphids that produced so much honey-dew that the leaves were sticky and coated with black fungus. They were new to the State, so the trees and aphids were destroyed.

A curiosity in the scale line came on Japanese bamboo plants. The scales themselves were partly hidden under the base of the leaves, but a very pretty curved, brittle, glassy, threadlike tube about an inch long protruded from the body of each scale. A Pleasanton lady on her return from Japan had a very pretty split bamboo cage in which were some green lettuce leaves. Upon inquiring what the cage contained, she replied, "Oh, I have some of the dearest little Japanese song crickets you ever saw, and the steward has given me fresh lettuce and fruit for them every day." I felt sorry for the lady, but had no sympathy for her pets, as they would have helped themselves to fresh fruit and other plant growths if they had unfortunately gained their liberty in California.

Upon another occasion the Chinese Ambassador had a similar cage with a very large species of katydid, that, like the song crickets, met a violent death.

Our discoveries have added a great many scales to "Cockerill's Check List of Coccidæ" that were new to science. Besides these pests, a good many leaf-eating caterpillars and beetles, leaf miners, stem and twig borers, etc., have been destroyed.

A pest similar to the codling moth damages apples in Japan and has secured a foothold in Victoria, British Columbia. A cabin passenger from Japan had some apples, which were confiscated, as they had evidence of the work of the pests. The worms burrow all through the fruit, but while none were found in this instance, their work was evident and the apples were destroyed.

A very serious and disgusting pest was found in cucumbers from Honolulu. This was the maggots of the fly that destroys cucumbers, melons, and squash. This pest was introduced into Honolulu some three years ago, and last year it was stated that seventy-five per cent of such products were destroyed by these maggots. The importers were notified that no such stock would in future be allowed to come into the State. The then Secretary of Agriculture of Hawaii, in a letter said: "I have no desire to introduce this, or any other pest, into California, or see any one else do so, but believe ordinary inspection at your port by a competent person will be a sufficient safeguard, if all specimens of fruit that show they are infected when they arrive are destroyed. * * * I will state we shall feel satisfied that any of the products are clean before shipment, if for no other than the fact they would not have any value in the market. We propose to grow these products under glass if necessary to get clean fruit, and you can depend that we will not knowingly send any other, and all that we ask is that our shipments have a fair show." In reply I wrote him: "We have no time to microscopically examine every melon, cucumber, and squash that may come here from the Islands for eggs or newly hatched larvæ of the pest. I would therefore advise you to devote your attention to the cultivation of other

products if you desire to market them in California. Statements in your letter are not assuring, and to benefit the Island planters we cannot jeopardize our own growers by admitting such products." They must have taken the hint, for no more cucumbers, melons, or squash have been received. The same pest was subsequently received from Japan, so I believe the Hawaiians got the pest from there.

The State of Oregon lost over \$300,000 in one year from the damage done their hop crop by the hop louse. Last spring two shipments, numbering 152,000 hop plants, were received from Kent, England. As the hop yards of Kent are known to be infested with the hop louse, we refused to allow the plants to be distributed, so they were deported to a State where they already have the pest.

The stoppage and death of a pair of mongooses from India is probably known to most of you. Another one came a few weeks ago from Manila and met the same fate. This animal looks like a large squirrel, and is death to all ground game and domestic fowls, and also eats eggs. They are also reported "to destroy young pigs, kids, lambs, kittens, puppies, rats, snakes, lizards, and frogs."

Regarding the destruction of the first pair, Mr. Dabney, the then Assistant Secretary of Agriculture, wrote: "If the mongoose once gains a foothold in California, it will probably increase rapidly, and the damage resulting from the destruction of small mammals and insectivorous birds, and the consequent increase of insect pests, will be incalculable."

The "Morelos," or "Mexican orange maggot," has made its appearance in Acapulco, Mexico. Very few oranges are received from Southern Mexican ports, but an invoice of eight cases, equal to sixteen boxes, arrived on the steamship "Colon" from Acapulco on the 19th of November, and was unloaded the following day. Upon examination we found the fruit to be infested with the above disgusting pest, so we had the fruit and cases cremated. This is one of the fruit-flies that in the larvæ state destroy fresh fruit. This species confines its attacks to the orange. The parent fly deposits her eggs in the pores of the orange peel; when the young maggots hatch they burrow all through the pulp of the fruit and are difficult to detect, as they are nearly of the same color as the pulp and give little, if any, outward indication of their presence. We found from three to fifteen maggots in a single fruit. When full grown they measure about half an inch; they then leave the fruit and enter the ground, where they change to the chrysalis stage and undergo their change and come forth as perfect flies, ready to spread to other trees and deposit their eggs on the fruit.

In preserving specimens of the maggots for the cabinet, we put a number of them into ninety-five per cent alcohol and were astonished to notice their vitality. The first to succumb was after they had been completely submerged for twelve minutes, and at the end of forty-two

minutes several still had sufficient life to raise half of their body as if in an effort to escape. No more oranges will be admitted from there. Such a pest established in California would soon seriously influence the sale and consumption of our oranges.

Before concluding, I desire that fruit-growers in the various counties petition their Supervisors to extend to their county horticultural commissioners all the aid they can; and in counties where no commissioners have been appointed, see that good competent men are immediately selected and appointed to look after importations of trees and plants by rail from east of the "Rockies." In so doing you will protect your own property, and the State Board of Horticulture, through its regulations and the State laws, will extend to you its support.

BIRDS AS BENEFACTORS TO THE FARMER AND FRUIT-GROWER.

ESSAY BY W. OTTO EMERSON, OF HAYWARDS.

From an economic point of view, the value of bird life and the relation of the birds to the farmer and fruit-grower cannot be over-estimated. They play the part of an important factor in the preservation of fruit from the depredations of insect pests, and as such should have the fullest protection from orchardists. Their economic value was not investigated to any extent until some ten years ago, when the United States Department of Agriculture formed a Division of Economic Ornithology for the scientific and careful examination of the food of birds.

Since that time bulletins have been regularly issued on the beneficial birds found throughout the United States. Of the 13,000 species of birds known to science, about 1,000 are known to North America. Of the land birds, there are some 360 which live entirely on insects; 630 live more or less on insect life; while nearly 100 depend entirely on such food as the seeds of weeds and wild grain, the year round.

Birds occupy a secondary place in the scale of life (animals occupying the first) and are most closely related to the reptiles, as we find the earlier types having teeth—representatives of the early Jurassic period. Birds are found at home from pole to pole, equally content whether on ocean wave, in Arctic snows, on arid deserts, or in the dense shade of the tropical forests.

Every day we find that the birds are preventing the increase of injurious insects and small rodents as well as of harmful plant seeds. Take any one day and consider the amount of food a bird consumes, particularly when they have broods of from four to nine, each little mouth taking in several ounces per day. This destruction of injurious mate-

rial is not only going on through each day, but is continued through the night by the owls, nighthawks, and poor-wills. Swallows and swifts keep down the insect growth in air, while various species of flycatchers, warblers, vireos, and hummingbirds are busy in and about the foliage. Woodpeckers, nuthatches, titmice, and gnatcatchers are always busy working over the limbs and tree-trunks, while innumerable varieties of thrushes and sparrows are continually at work on the ground seeking terrestrial insects as well as worms and seeds.

Birds digest their food so rapidly that it is difficult to determine just how much they consume during a day's feeding. Mr. E. H. Forbush, of the Board of Agriculture of Massachusetts, states that the stomachs of four small chickadees contained 1,028 eggs of the cankerworm; the stomachs of four others had about 600 eggs and 105 female moths of the cankerworm in them. It was estimated that one chickadee feeding for twenty-five days would destroy some 138,750 eggs of this noxious worm—a phenomenal amount for so small a bird.

Professor Forbes, Director of the Illinois State Laboratory of Natural History, found in the stomach of a single robin, 175 bibis (a fly), which, in the larvæ stage, feeds on the roots of grass. From a few facts of this nature we can see what an economic factor the birds are, flitting about our farms and orchards by day and night. Hawks and owls especially, that are usually so condemned by the farmer and sportsmen in general, are constantly protecting the crops by killing off thousands of small rodents so destructive to grain and trees, and also by consuming millions of grasshoppers in the fall of the year. In fact, many species of hawks prey wholly on grasshoppers.

Dr. A. K. Fisher, assistant of the U. S. Department of Agriculture, found in the pellets cast up by a barn owl, that 200 contained 450 small mammals, no less than 225 of these being skulls of the field and meadow mice. Still we find that in many of our States a bounty is offered for the heads of hawks and owls! The State of Pennsylvania sustained a loss of nearly \$4,000,000 in eighteen months from the killing of over 100,000 of these birds. From my personal experience of one nesting site in an old sycamore limb, along the edge of my orchard, I took from a barn owl's nest five pocket gophers, two wood rats, three small lizards, and two snakes. This was the food brought the young in one night! I have only found two species of hawks to be harmful about the habitations of man; of the owls, all are beneficial.

As time rolls on and vast stretches of land come under cultivation, we shall see the need of giving more attention to the study and protection of bird life, as the birds seek homes about our premises, to raise their broods and render a valuable service in keeping in check millions of noxious insect pests. It is stated as a fact by one of the leading entomologists of the United States that insects alone cause an annual

loss of at least \$200,000,000 to the agricultural interests of this country. Thousands of the trees in our great city parks, as well as vast forests, are already affected by a species of scale, which cannot be checked without a great outlay of time and money, but which can be kept in check if we will give protection to our bird life by wise legislation.

The amount of harmful seeds destroyed by birds throughout the year runs into millions of pounds, as one of the U. S. Department of Agriculture ornithologists has figured out. One species of seed-eating birds of the junco family consumes at the rate of one-fourth of an ounce per day, and they average ten juncos to each square mile of land. In 200 days this species, in the State of Iowa alone, consumes 875 tons of noxious weed seed in a single season. Large as the figures seem, they certainly fall far short of the reality.

In treating of the economic value of birds, it has been mainly to show them as consuming insects only, whereas we here find them feeding on thousands of pounds of harmful weed seeds as well, which fact has not been fully known and appreciated. One of our many small sparrows will fill his crop with 1,000 seeds of the pigweed for its breakfast, and as many as 7,500 seeds have been counted from a dove's crop. Among many of the birds which feed on seeds are the towhees, song sparrows, lark finches, horned larks, grosbeaks, Gambel's, golden-crowned and field sparrows, as well as seven varieties of goldfinches and others.

I find 31 species noted feeding on seeds about my home. There are 84 species that can be found through parts of the year that live entirely on insects. Among them are three forms of wrens, five warblers, two titmice, four vireos, and woodpeckers, juncos, kinglets, Audubon's warbler, and two species of goldfinch. I have seen two species feeding on the apricot scale. The bush tit, warbling vireo, yellow warbler, and plain titmouse will hunt the pear and apple orchard over for larvæ of the codling moth.

Of birds that have been proven harmful to the orchardists, may be mentioned more particularly the house finch, sometimes known as the red-headed linnet. They will eat the base of the prune and cherry blossoms for the sweet juice of the flower. Gambel's and golden-crowned sparrows are the worst pests for destroying fruit blossoms and young peas. The two sparrows named leave soon after the trees have blossomed and are only a winter resident with us. There is only one remedy for them—powder and dust shot.

From the following subjoined notes from the laboratory work of investigation of birds' stomachs from the Department of Agriculture will be seen the character of the foods of many of our common birds:

In 330 stomachs of the robin, 42 per cent was animal matter; 19 per cent consisted of beetles; caterpillars, 6 per cent; grasshoppers, 30 per

cent; vegetable matter, 7 per cent, besides wild fruits. The food of wrens is 98 per cent insectivorous the year round, only 2 per cent being vegetable. They feed on bugs, spiders, caterpillars, flies, and larvæ wherever found.

All thrushes' food consists of beetles, bugs, spiders, grasshoppers, caterpillars, earthworms, and a few seeds and wild fruits. Of the orioles' food caterpillars constituted 34 per cent of that found in 173 stomachs, other insects being bugs, beetles, ants, wasps, spiders, and grasshoppers, besides larvæ and bark-lice. Of 238 stomachs of the meadowlark examined, animal food—that is, insects—constituted 73 per cent; vegetable matter, 27 per cent, 14 per cent of which was hard weed seeds and grain. They consume cutworms by thousands, also wireworms and beetles.

The bee martin, or kingbird, is a great feeder on insects. Out of 281 stomachs collected from different parts of the country, only 14 honey bees were found, the majority being drones. The great bulk of food of this species is largely noxious species of beetles (the May and click varieties), wireworms, wasps, weevils, crickets, and grasshoppers. All the flycatchers, of which there are many species, are among the most beneficial of the birds frequenting orchards.

Grosbeaks feed largely on vegetable matter, buds of forest trees, and wild fruits. Of insects they consume corn-worms, beetles, caterpillars of all forms, and in Colorado they have been known to clean out the noxious potato beetles when nothing else would touch them, bringing their young to the patches to feed as soon as they could fly.

Bluejays, we find, have a hard name, but from 292 stomachs examined, animal matter comprised 24 per cent and vegetable matter 76 per cent of this bird's diet. Only five stomachs had any remains of small birds, or egg shells. Besides this food the jay eats mice, salamanders, snails, beetles, grasshoppers, caterpillars, more than 19 per cent of their whole food consisting of harmful insects. In the fall months their food consists of from 64 to 83 per cent of acorns.

While many of our birds are known to now and then eat of our fruits, if we carefully compare the benefits accruing from their work the balance will easily be in their favor. Why should we not give them some protection? Thousands are being killed every month by one means or another, and they threaten to soon become scarce about our homes and orchards. One instance I wish to give as showing the wholesale destruction of bird life for the San Francisco market, which is now going on: In a letter to Mr. Chester Barlow, Secretary of the Cooper Ornithological Club, from Mr. W. B. Sampson of Stockton, and dated February 14, 1898, Mr. Sampson states that on the day before he happened along a levee some distance from the city, where the brush is inhabited by thousands of small birds. He noticed that two Italians

had a fine mesh net fifty feet long stretched over the brush, as he thought, for repair, but was surprised at seeing them begin to beat the brush with sticks a hundred yards beyond the end of the net, driving all the birds into it. They were snaring them, as they said, for the markets. Mr. Sampson saw them take out 50 birds and they had some 300 caught as the result of a day's work. They were questioned, and admitted having practiced snaring for some time, and had captured as many as 2,000 birds in a day and sent them to the San Francisco market as "reed-birds." No doubt there are many more practicing this destruction in other parts of California, and if it is kept up the results can be foreseen. It will result in an increase of pests on our farms and consequent damage to the fruit-growing industry. Many States have enacted strict and most commendable laws to protect the native birds from such wanton slaughter. Why shall not California do the same? It is a question vitally important to the fruit-grower of the future.

SUBSTITUTES FOR PARIS GREEN.

ESSAY BY PROF. C. W. WOODWORTH, OF BERKELEY.

Paris green is practically the only substance that has been widely and extensively used as a remedy for the codling moth. During the last three or four years a great deal of complaint has been made, both here and in the Eastern States, because of the failure to obtain the same good results as formerly, even by orchardists who do very careful work and have previously had the best results. During this same period there has been a decided change in the microscopic appearance of most of the Paris green on the market, indicating a large amount of adulteration on the one hand and a different and less satisfactory method of manufacture on the other. The situation became so thoroughly unendurable that the Agricultural Experiment Station, after obtaining the opinion of many of the entomologists of the various experiment stations, editors of a number of agricultural journals, and other interested parties, has decided not to recommend the coming year the use of Paris green at all as an insecticide.

Forms of Impurities.—Three distinct classes of unsatisfactory Paris green can be recognized, which we would designate respectively, as *bogus*, *adulterated*, and *low-grade* Paris green.

Bogus Paris Green.—Under this title is included that series of out-and-out imitations of Paris green in which the color is produced from other substances than copper, and which usually contain no trace either of copper or of arsenic. They are usually perfectly harmless to the plant and to the insect, and quite decidedly cheaper than Paris

green. They are sold mostly by paint-dealers, and were probably manufactured for use as a cheaper form of green pigment than is Paris green.

Adulterated Paris Green.—This class of Paris green is often sold by unscrupulous dealers—sometimes by honest dealers who have been supplied by unscrupulous jobbers—and indicates always an intention of fraud on the part of some one. It consists of Paris green in part, generally upward of fifty per cent, and to this is added some other substance for the purpose of increasing the weight. Any white powder, such as gypsum, will do, and even flour has been used. The intensity of the green color in good Paris green allows considerable addition of white material, though, in some cases, green or blue pigments are added to prevent detection. Most of these forms of cheapening Paris green are at once recognized by either the “ammonia” or the “glass” test, and especially are they at once detected under the microscope.

Low-Grade Paris Green.—The third type of unsatisfactory Paris green, and the one most difficult to recognize, is a “low-grade Paris green”; by which term it is intended to designate those manufactured in such a way as to contain a low per cent of arsenious oxid in combination. A strictly pure Paris green can be produced, according to our observations, with not over forty per cent of arsenious oxid, but such a sample is simply low-grade. To use such in spraying would require nearly one half more material to produce effective spraying than would be necessary with a sample containing the normal fifty-eight per cent of arsenious oxid. For this class of green it appears that the only test now available is the chemical determination of the quantity of arsenic present.

The production of low-grade Paris green is almost as expensive, or perhaps quite as expensive, so far as the ingredients used are concerned, as is the production of the high-grade article.

It therefore appears that the low-grade greens are produced not with any intention of defrauding the public, but rather because of the ease of manufacture. The laws, especially of New York, where the greatest amount of Paris green is manufactured, require the total arsenious oxid to be above fifty per cent, and this has required the addition, either during or after manufacture, of sufficient arsenious oxid in the free state to come within the requirements of the law. As a result of this the greater part of the low-grade Paris green on the market contains as an adulterant a considerable proportion of the free acid. The determinations that have been heretofore made have only taken into consideration the total arsenic per cent, and so all these samples of low-grade, “doctored” Paris green have been passed as pure.

Danger from Arsenical Adulterations.—White arsenic (arsenious oxid), as has long been known, is very injurious to foliage; for this reason, it is scarcely at all used for the destruction of insects. It is much cheaper than Paris green, and were it not for the injury to foliage would have been used entirely instead of Paris green. The one thing which has made the latter the standard insecticide has been its *insolubility*. Of late years, since the addition of free white arsenic has become a common practice by the manufacturers, or by adulterators, the unreliability of Paris green in its influence on foliage has been repeatedly noticed. In the hands of the farmer this is almost sure to result in a diminution of the dose until the injury becomes unimportant. On the farm it is the practice to weigh and measure things very carelessly, and the difference between full measure and scant measure, even when the farmer thinks he is following directions, amounts to a very great deal. The diminution of dose has been one of the causes, and an important one, of the complaints of the ineffectiveness of Paris green, which we have heard from all over the United States during the last few years.

The danger to foliage from free arsenic has also resulted in the change of the formula now usually recommended, by attempting to neutralize the soluble substances in the Paris green by the addition of lime. This matter will be referred to again below and in more detail. The addition of lime has been more or less successful when the amount of arsenic was not too large, but one of the great advantages of Paris green—that which more than anything else has caused it to hold its own as an insecticide—is the fact that no preparation is necessary. The substance as it is purchased from the store is stirred up in water and is at once ready for use. If it is necessary to add some material to neutralize the free arsenious oxid, it will be better to take slightly more trouble and decrease the cost of the material by the use of home-made arsenites.

Cause of Injury to Foliage.—While Paris green is entirely insoluble in pure water, it appears that as ordinarily used a certain amount of it does find its way into solution and thus enters the plant; and if very much goes in, the death of the part of the plant thus poisoned ensues. The most critical period seems to be the time during which the spray remains wet upon the leaf, and each subsequent wetting of the leaf from any cause, such as a fog or dew, continues the danger. It has been demonstrated repeatedly that dry Paris green can be placed upon a leaf in any quantity, and so long as the leaf remains dry no evil results will follow. After an application in the wet way, almost immediately, within twenty-four hours, a blackening of the leaf or of parts of the leaf may occur, or the leaf may entirely escape at that time, but later, after a dew or fog, show the signs of the action of the poison; or again, there

may be no blackening of the leaf observed at any time, but the leaf may become prematurely yellow and drop off within two or three weeks from the time the application was made; showing that the poison which entered the plant, though not enough to kill it at once, deranged its functions to such an extent as to cause this premature dropping. These two forms of poisoning we have designated as the *acute* and the *chronic* poisoning of arsenic.

The amount of poisoning that may occur, other things being equal, seems to be entirely dependent upon the amount of soluble arsenic in the spraying mixture, though there are conditions of the plant when it is possible to spray even with a solution of arsenic and produce no evil effects. We know that under certain conditions leaves will absorb water, and under other conditions not at all; so it may be supposed in cases where solutions of arsenic have been applied without injury, that the plant was in such a condition that no absorption of water took place and none of the arsenic solution entered the plant; and that before the leaves became again absorbent the water had evaporated, leaving the arsenic upon the leaves in a dry form. This might flake off and blow away from the leaves before they are exposed to a dew or fog. It may be that when we know more about the effect of weather upon the leaves, we will be able to spray at times when the leaf is least susceptible to injury, and so lessen the danger to the plant.

Prevention of Injury.—A chemical means of avoiding the injury of Paris green has been used considerably. It consists in adding a large amount of lime to the water in which the Paris green is mixed, and this appears to be sufficient to render insoluble any slight amount of free arsenic or other soluble arsenites that may be present. The use of lime with Paris green has now come to be recognized as a very important precautionary measure in preparing this spraying material, chiefly because of the presence of white arsenic in the Paris green that has been manufactured of late years. The amount commonly recommended varies from one to ten parts of lime to each part of Paris green. If the amount of free arsenic in the sample is not too high, good effects will result from adding the lime; but beyond a certain point the lime does no good, and may even do harm. It has long been known that lime acts on white arsenic, when the latter is in suspension in water, in such a way as to render it much more injurious to foliage than the arsenic would have been without the lime.

Laws Concerning Paris Green.—A number of the States, including New York, Louisiana, Texas, and Oregon, have enacted laws requiring the Paris green sold on the market in those States to contain fifty per cent of arsenious oxid. These laws differ somewhat in detail in the different States, but agree in establishing this standard for purity. Appar-

ently, the only requirements of the laws in any of these States is that the substance sold as Paris green shall contain at least this minimum amount of arsenious oxid. Since arsenic is the cheaper ingredient in Paris green, it is evident that this law could be taken advantage of by the manufacturers or dealers and an inferior article placed on the market, containing any combination of material so long as it is green and contains sufficient of this comparatively cheap substance.

There is nothing in the laws, nor has there been any attempt by the chemists in charge of the analyses made under the laws, to distinguish the amount of uncombined, or soluble, arsenious oxid in the substances sold as Paris green. Such laws may be satisfactory to manufacturers or dealers, but certainly leave very much to be desired from the standpoint of fruit-growers or agriculturists in whose benefit they are supposed to have been enacted; they show evidence of the failure to appreciate the real situation by those who frame the laws. In most of these States the laws are well provided with means to secure their enforcement, so that by remedying the defect pointed out above, by the establishment of a truer standard of purity, the markets would again be filled with a satisfactory Paris green. Manufacturers are not so blind to their own interests as to fail to meet any clearly defined demand. They stand anxious and ready to meet any reasonable requirement the fruit-grower may make.

Substitutes for Paris Green.—A good sample of Paris green is a satisfactory article for killing codling moth, and it has been tested so long under all sorts of conditions, and proven itself thoroughly satisfactory; and moreover, as it can be had everywhere, and requires no preparation, it is altogether an extremely satisfactory remedy to use. The unreliability of the substance, however, is such that unless one is assured of the quality of the sample he intends to use, the only safe procedure is to use one of the substitutes hereinafter described. Not only the unreliability, but also the cost of Paris green, has caused many to look for a substitute. This search has been sufficiently successful to incline many to the opinion that Paris green never can again take the almost exclusive place it formerly held among this class of insecticides. A number of compounds have been suggested and more or less thoroughly tried for this purpose, and the results obtained in some cases have been very highly satisfactory. There are quite a number of substances of this character already on the market, and some can be very easily and cheaply manufactured at home.

Home-Made Compounds.—The cheapest arsenical compounds are certainly home-made mixtures. The method of manufacture of these substances is very simple, and there seems to be no reason why they might not be used almost exclusively.

Arsenate of Lead has not been tried, except in a very limited way, for the codling moth, but the highly satisfactory results obtained upon other insects and the perfect safety to foliage would indicate that it might be extremely profitable to experiment with. There are two methods of making arsenate of lead, which produce substances somewhat different in chemical structure, but about equally effective. In each method sixty-eight per cent of arsenate of soda is used, and with this, in one case, the ordinary white granular acetate of lead, and in the other, lead nitrate. The process of manufacture is as follows: The lead salt and arsenate of soda are dissolved separately, and then poured into the tank containing the water for spraying. The proportions used are about as follows: For every ten ounces of arsenate of soda take twenty-four ounces of lead acetate or twenty ounces of lead nitrate. These substances can be purchased in the right proportions and tied up in bags, so that it will take one bagful of each for each tank of water.

The amounts given above are sufficient to make about a pound of the pure arsenate of lead, which would probably be enough for one hundred and fifty or two hundred gallons of water. It can be used with perfect safety several times as strong as this. As a precautionary measure, it might be well to test the mixture in order to be sure that the arsenic is all in combination, which can be done by the use of potassium bichromate, which will produce a yellow precipitate if the solution contains lead in excess, as it should.

Arsenic and Lime.—Very satisfactory directions for making this mixture are given in a letter from Professor Taft, of Michigan, one of the first who extensively experimented with it. He writes: "I have had excellent results from boiling one pound of (white) arsenic and two pounds of lime in two gallons of water for forty minutes and then diluting as required. When one pound of the arsenic prepared as above is used in every three hundred to four hundred gallons of water, I have found it equal to Paris green for destroying codling moth and curculio, while one pound answers for one hundred and fifty to two hundred gallons of water when it is used upon potatoes; unless used in Bordeaux mixture, I find it best to add a small amount of lime when diluting. As the wholesale price of arsenic has averaged about seven cents per pound for a number of years, while Paris green has wholesaled at eighteen cents, it is evident that the latter is fully five times as expensive." In reference to the comparative value of arsenic with soda and lime, he further writes: "While some recommend the use of sal-soda to dissolve the arsenic, we have not found it necessary; and as the use of soda at the rate commonly recommended nearly doubles the expense of the spraying mixture, we have not recommended it, although the claim that when sal-soda is used it is possible to tell when the arsenic is dissolved, is correct." The only trouble with this mixture

seems to be the danger of an incomplete union between the lime and the arsenic, so that the full forty minutes' boiling, possibly even with more lime and the addition of lime when diluting, would probably render the mixture entirely safe."

Arsenic, Soda, and Lime.—This is often known as the Kedzie formula, as it seems first to have been recommended by Professor Kedzie, of Michigan. The method of its production is fully described in the following letter from Professor Kedzie:

AGRICULTURAL COLLEGE, MICHIGAN, September 5, 1899.

The formula I recommended for an arsenical spraying mixture to take the place of Paris green was the following: Boil two pounds of white arsenic with eight pounds of sal-soda in two gallons of rain water. Boil these materials together in any iron pot not used for other purposes; boil them fifteen minutes, or until the arsenic dissolves, leaving only a small muddy sediment. Put the solution in a two-gallon jug and label *Poison, Stock Material for spraying mixture*. The spraying mixture can be prepared whenever required in the quantity needed at the time, by slacking two pounds of lime, and adding this to forty gallons of water; pour into this a pint of the stock arsenic solution; mix up, stirring thoroughly, and the spraying mixture is ready for use. The arsenic in this mixture is equivalent to four ounces of Paris green.

ADVANTAGES OF THIS METHOD: *First*—It is very cheap and the materials can be found in every village in the State;

Second—The stock material (arsenite of soda) is easily prepared and can be kept in that form for any length of time, ready for making a spraying mixture of lime and water;

Third—The arsenite of lime in the quantity required for spraying will not burn the leaves, or injure the trees or plants;

Fourth—It will be uniform in quality and not vary in strength, as Paris green often does;

Fifth—It makes a milky colored spray and the color on the trees will show how evenly it is distributed.

Every one using such deadly poison should bear in mind the possible danger from its use; the pot, the jug, and every apparatus for making the arsenite of soda should be used for no other purpose of any kind.

Very faithfully,

(Signed:) R. C. KEDZIE.

Mr. Smith, of Hood River, Oregon, varies this formula, recommending: "Instead of two pounds of lime I used not less than six pounds; and I found that the additional lime prevented burning foliage and also retained the poison longer on the trees. I also used one quart instead of one and a half pints of the arsenic to fifty gallons of water." And again, "I would recommend using freely of the lime up to say ten pounds to fifty gallons of water."

NATIONAL HORTICULTURAL QUARANTINE.

The Committee on Legislation presented a report recommending the adoption of the following bill on national horticultural quarantine:

AN ACT

TO PROVIDE FOR THE INSPECTION AND TREATMENT OF TREES, PLANTS, BUDS, CUTTINGS, GRAFTS, CIONS, NURSERY STOCK, AND FRUIT IMPORTED INTO THE UNITED STATES.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled:

SECTION 1. That the Secretary of Agriculture be, and he is hereby, authorized, at the expense of the owner or owners, to place and retain in quarantine all trees, plants, buds, cuttings, grafts, cions, nursery stock, and fruit imported into the United States, at such ports as he may designate for such purposes, and under such conditions as he may, by regulation, prescribe, and that he may appoint inspectors for the purpose of examining such trees, plants, buds, cuttings, grafts, cions, nursery stock, and fruit for the purpose of ascertaining whether they are affected by any injurious insect or disease, the importation of which will be prejudicial to the horticultural interests of the United States, and provide for the treatment of such when found necessary.

SEC. 2. That when such trees, plants, buds, cuttings, grafts, cions, nursery stock, or fruit shall be determined to be infested with any injurious insect or disease, they shall be treated at the expense of the owner or owners in accordance with the regulations of the Secretary of Agriculture, or they shall be destroyed in case their condition is such as to warrant such destruction. But an appeal may be taken from the decision of the inspector to the Secretary of Agriculture, if such appeal be taken within three days after such inspection, and the decision of the Secretary of Agriculture shall be final.

SEC. 3. That when such inspection shall show that such trees, plants, buds, cuttings, grafts, cions, nursery stock, or fruit are apparently free from injurious insects or diseases, a certificate to this effect, made in accordance with the regulations of the Secretary of Agriculture, shall be issued to the owner or owners thereof by the said inspector, and this certificate shall operate to release all the objects above specified, when duly stamped or labeled with the same, from further quarantine or restriction at the said port of entry. Any person who shall forge, counterfeit, or knowingly alter, deface, or destroy any of the marks, stamps, or certificates provided for in the regulations of the Secretary of Agriculture on any such trees, plants, buds, cuttings, grafts, cions, nursery stock, or fruit, or who shall forge, counterfeit, or knowingly or wrongfully alter, deface, or destroy any certificate as provided for in said regulations, shall be punished by a fine not to exceed five hundred dollars or imprisonment not to exceed one year, or both, at the discretion of the court.

SEC. 4. That whenever it shall appear to the Secretary of Agriculture that any foreign country shall have provided proper and competent inspection and treatment, in accordance with the provisions of this Act, for the objects above specified as being subject to inspection and treatment, he may, by proclamation or otherwise, accept such inspection and treatment in lieu of inspection performed by officers appointed by himself, which acceptance or proclamation by the Secretary of Agriculture shall relieve all such articles specified in the foregoing sections of this Act, when properly stamped or labeled, from further quarantine or restriction, except such as may be provided by the laws of the State or Territory to which they are sent within the United States.

SEC. 5. That whenever it shall appear to the Secretary of Agriculture that any variety of fruit grown outside of the United States or District of Columbia, is being, or is about to be, imported into the United States or District of Columbia, and such variety of fruit is infested by any injurious insect or disease, which insect or disease is liable to become established in the United States and injuriously affect any variety of fruit grown therein, he shall have authority to quarantine against any such variety of fruit, and prevent the importation of the same until such time as it may appear to him that such insect or

disease has become exterminated in the country where such fruit is grown, when he may withdraw the quarantine, and this shall operate to relieve all such fruit from further restrictions as long as the conditions of freedom from injurious insects or diseases shall continue.

SEC. 6. That the sum of fifty thousand dollars, or so much thereof as may be necessary, is hereby appropriated out of any moneys in the treasury of the United States not otherwise appropriated, to carry into effect the provisions of this Act.

SEC. 7. This Act shall take effect on and after the first day of July, nineteen hundred.

Upon motion, the bill was adopted, and the Secretary of the Convention requested to forward copies to our Senator and Representatives at Washington for introduction in Congress.

NICARAGUA CANAL.

JUDGE AIKEN. The Committee on Resolutions beg leave to report that they have carefully considered the resolution on the Nicaragua Canal, introduced by Mr. Edward Berwick, and recommend its adoption by the convention, as follows:

WHEREAS, Half a century has already been devoted to a succession of surveys by various commissions without any decisive steps being taken towards actual construction; and

WHEREAS, The Nicaragua Canal Commission headed by Admiral Walker has reported favorably as to the entire feasibility of such construction at a reasonable outlay; and

WHEREAS, The prosperity of the whole agricultural and horticultural interests of the Pacific Coast, involving many millions of dollars annually, depends in the future on improved transportation facilities; therefore, be it

Resolved, That this convention of the fruit-growers of California most urgently petitions the Congress of the United States to proceed at once to enact such legislation as will enable the Government of the United States to proceed to the immediate construction of the Nicaragua Canal upon the basis of the Walker Commission.

Resolution adopted.

REPORT OF COMMITTEE ON TRANSPORTATION.

R. D. STEPHENS, chairman of the Committee on Transportation, submitted the following report:

Your Committee on Transportation and Marketing beg leave to make the following report:

WHEREAS, The railroads entering California and engaged in transporting fruit therefrom have made traffic arrangements and agreements under which special privileges and benefits accrue to certain shippers that are denied to others; and

WHEREAS, Under the agreements above referred to shippers of green and citrus fruits from California are forced to make their shipments in cars controlled by private individuals or corporations, under which arrangement exorbitant and extortionate tribute must be paid by the fruit-growers to private parties or corporations, and by which arrangements the green fruit shipments from California are practically forced into the hands of two shipping firms, thus giving to them privileges that are denied to others and by which all competition is in effect cut off; and

WHEREAS, Under the arrangements and agreements above referred to, favored shippers, by reason of carline benefits accruing to them both on their own shipments and

on others forced into cars operated for their benefit, are able to manipulate markets to the detriment of other shippers and growers; and

WHEREAS, All the above unjust discriminations and the consequent disastrous results to the fruit-growers of California have been effected by the railroad companies over the constant protests and pleadings of the fruit-growers; and

WHEREAS, We believe the agreements under which all of this hardship and damage has resulted both unjust and unlawful; therefore, be it

Resolved, That this convention voice the protest of the fruit-growers of California against the grossly unjust and discriminating policy inaugurated and forced upon us by the transportation companies;

Resolved, further, That this convention, representing all classes of fruit-growers, hereby extends sympathy and every aid in its power to the growers of green and citrus fruits who are the direct sufferers under the wrongful policy above referred to, and we believe that the wronged growers should pursue vigorously every lawful means within their power to compel the correction of the evil, and we pledge our earnest support in every such effort;

Resolved, That we disapprove and denounce as unjust and iniquitous the existing private carline system to which our shipments are farmed out by the railroad companies and to which shippers are compelled to pay tribute, and we urge the railroad companies to provide suitable equipment, or permit the fruit-growers to do so, for all fruit shipments free from the domination of any individual or private corporation and available to all shippers on equal terms.

On motion, the above report was referred to the Committee on Legislation.

COMMITTEE ON ORGANIZATION.

The President announced the appointment of the following committee of ten (later increased to twenty-one) to call a convention of fruit-growers to meet at San José in January, 1900, for the purpose of effecting a more complete organization by conferring with the prune-growers of the State:

S. R. JOHNSON, San José.	H. W. MEEK, San Lorenzo.
W. P. CRAGIN, San José.	C. W. CHILDS, San José.
S. P. SANDERS, San José.	A. MONCURE, Palermo.
F. M. GRIMSHAW, Sacramento.	B. E. HUTCHINSON, Fowler.
J. B. DE JARNETT, Colusa.	B. F. WALTON, Yuba City.
JOHN MARKLEY, Sonoma.	ALFRED BARSTOW, San José.
THOS. A. JACOBS, Visalia.	G. E. LAWRENCE, Lodi.
A. B. FLETCHER, San José.	H. L. STEVENS, San José.
H. L. GIBBS, Stockton.	L. F. GRAHAM, San José.
A. R. SPRAGUE, Los Angeles.	— — —, Kings County.

CHARLES BARNES, Suisun.

At this time a recess was taken until 7:30 o'clock this evening.

THIRD DAY—EVENING SESSION.

THURSDAY, December 14, 1899.

At 7:30 o'clock P. M. the convention reassembled. President COOPER in the chair.

FRUIT TREE STOCKS.

ESSAY BY LEONARD COATES, OF NAPA.

The fine appearance of most orchards in California is due as much to natural conditions as to the skill of the nurseryman or the care of the orchardist. When soil and climate are perfect, he is an egotist indeed who takes to himself the credit for unusually vigorous growth or abnormal bearing qualities. Let these conditions be adverse and the results would be far different.

I would mean by this that neither the nurseryman nor the orchardist is as careful as he would have to be elsewhere to produce a fine orchard, and in nothing is the former more careless than in the selection of suitable stocks, or roots, on which to graft or bud his trees.

The causes which led up to this state of things are various. Low prices for trees always follow correspondingly low prices for fruit, and vice versa. A large demand for trees in a few years begets an oversupply of the commodity, and a slump in prices. Oregon has shipped millions of trees into this State and at prices which could permit of no profit to the grower. The farmer, who thinks the nurseryman is making money too fast, plants a lot of peach seed and buds the trees during the summer. He makes nothing himself and prevents those who follow the business from selling at a profit.

The planting public may be benefited by these low prices, temporarily; but, as in all other lines of business, cheap trees may be the dearest in the end.

Unless more care is given to the selection of fruit tree stocks a vigorous and prolific orchard will be the exception rather than the rule. Twenty years ago several nurserymen raised seedlings for their own use and for sale. The cheap imported French stock put a stop to that, and now California is entirely dependent upon other States or countries for pear, apple, cherry, and plum stocks. This ought not to be, and I believe the time will soon come when a nurseryman who will grow and select his own stocks and so advertise, will readily obtain fifty per cent more for his trees than for others which cannot be so guaranteed.

It is accepted by all progressive horticulturists that the stock exerts a certain influence on the graft or bud inserted into it. This may be to

dwarf the tree, to give it added vigor, or to adapt it to the soil or climate. In like manner, disease, particularly that which is inherent or hereditary, will be communicated between stock and graft; hence, the importance of grafts or buds from healthy trees worked only upon healthy stocks.

Millions of seedlings which are being used as stocks for fruit trees are not healthy, and it is only the exceptionally favorable conditions which exist in California that prevent, in a measure, the more noticeable effects in our orchards. As the land becomes weakened by continual cropping, the effects of poor stocks will soon be seen. The reasons are, mainly, the demand for cheap trees and the fact that many California nurserymen are so called because they have rented some land and planted a certain acreage of seedlings for budding; they have had no previous training or experience, and, at the turn of the wheel, they are just as likely to boom some oil stock, plant sugar beets, or marry a rich widow. In other words, they are neither nurserymen nor horticulturists, and never will be.

To grow apple seedlings that are healthy and free from aphid it is essential, in the first place, that the seed be good and plump and not taken indiscriminately from any and all varieties. Seed from the crab-apple is by some considered the best. In the second place, new land must be used, away from old orchards, and open to the full sweep of the wind; a rich river bottom is generally the best. And in the third place, the seedlings must be kept growing very vigorously until fall, by thorough cultivation and frequent irrigation. For small plantings the seed may be sown in boxes and the plants transplanted when several inches high.

The late John Lewelling claimed that seed from Rawle's Janet and Golden Russet produced roots which were free from the woolly aphid, and I have growing in my experimental grounds named seedling apples from New Zealand which are said not only to be aphid proof, but to bear fruit of exceptional quality.

It has been the practice for many years in Australia and New Zealand and, to a lesser extent in this country, to grow apples on Northern Spy stocks, which are aphid proof. Some other varieties, such as Winter Majetin, are also used. The method is to graft cions of the Northern Spy on to small pieces of apple roots, and plant them in the ordinary way. Roots will grow from the graft, and the next fall the plants are taken up, the apple roots cut off, and we then have a strong Northern Spy apple on its own roots. These are planted out, either in the orchard or in the nursery, and grafted with the variety it is desired to propagate.

For dwarfing the apple the Paradise stock is used. This is a European wild apple, and is propagated by layering; it is quite liable to the attack of the aphid, and ashes should be used freely when trees

are planted, and afterwards for several years. Apple trees on this stock bear at three years old and continue this prolific habit. The fruit is as large and fine as that on standard trees, and the tree has many advantages in being of small size, such as saving labor at picking and pruning time, and in spraying for codling moth. Dwarf apple trees are planted quite close, not more than ten or twelve feet apart.

Much that has been said of the apple applies to the pear, except that the need of care is intensified by reason of the aphid in this case being fatal to the tree. French pear seedlings have been badly infested with aphid for years, and their importation should be stopped. Seeds of the Seckel pear produce fine seedlings, and such varieties should be grown for that purpose, the pear itself being dried and the seed saved. Seedlings of Japanese pears have been used for some years; they possess great vigor, but their adaptability as stocks has not yet been fully demonstrated. They have been used mostly in the Southern and Southwestern States. Pears of this class, such as Kieffer, Le Conte, Mikado, etc., root readily from cuttings, and such are used for stocks. It is not to be recommended, however, that cuttings be used for stocks in any case where a good seedling can be had.

Cherry seedlings are mostly imported, and while nurserymen used to raise their own stocks from trees of Mahaleb and Mazzard, these have long since been grafted over and the French stock used. So far the only pest coming with them has been an aphid which appears on the leaves soon after the plants begin to grow. The Mazzard stock is most in favor and is undoubtedly the best in deep soils. Where the land has a clay subsoil and is shallower, the Mahaleb is better adapted, and this stock seems to have stood the drought of the last two seasons better than the Mazzard. If this is generally so, then it is the more valuable stock.

The peach is budded almost entirely upon peach seedlings, and but little need be said here, except that seedling or natural pits are the best to use. I have used the peach-almond, but there are few of these trees left in the State. Stocks from this seed were of unusual vigor. Hardshell almonds are used by some and are well adapted to dry, deep soils.

The apricot is budded also on the peach, and on its own seedling, the former being generally preferable.

The best stock for plums is more of a debatable question. Theoretically a fruit is better worked on a seedling of its own kind, but it is certain that some of these fruits succeed better on the peach. Seedlings of the Green Gage plum make good stocks, but these were scarce, so any European or Domestica plum seed was used in the early horticultural days of California. The Myrobolan stock was introduced some twenty or more years ago, the St. Julien and Mirabelle being also

imported. The former was found more generally adaptive: it did not sucker, and it was cheaper; it also could be grown from cuttings. Thus the Myrobolan became the one plum stock for California, and it has been used almost exclusively. Many varieties of plum outgrow it, which is an objection, and it dwarfs a tree to some degree. This fault is largely overcome, owing to the favorable conditions before alluded to. Trees on Myrobolan are more liable to become bark-bound and, possibly by reason of the sap starting early, trees in a wet spring are, on Myrobolan, more liable to die because of "sour sap." Further, Myrobolan seedlings as they come to us from France vary more than any other. In growth, in color, in form they differ widely. The wood of some is pale yellow, and from that, in every shade, to deep purple. Some grow upright, some spreading, and some actually of weeping habit. To use such stock one cannot have a continuously uniform orchard. Those only should be used which are of vigorous, upright growth, but the public demand is for cheap trees, and the demand must be supplied. Professor Bailey, of Cornell, has traced the history of the Myrobolan. It is very interesting and goes back as far as 1601. Time will not permit of more than reference to it. Those who wish can read it in Bulletin 38 of the Cornell University Experiment Station.

Of late years, owing to a growing disfavor in behalf of the Myrobolan, cuttings of Marianna have been largely used as stocks for plums. This is believed to belong to the same species as the Myrobolan, but possibly a hybrid between it and Wild Goose. After experimenting with it, however, I find no advantage over Myrobolan, and a serious drawback as with all cuttings—an imperfect root system. It is not grown extensively enough to get seed, and such would be much the same as Myrobolan.

Cuttings from *Prunus triflora*, the species which is generally known as Japanese plums, but which originally came from China, root with ease, and some variety may be found which will make a good stock.

Luther Burbank believes "that a hybrid plum with Japan blood will be the universal stock for stone fruit, such as peaches, almonds, plums, etc." He is making some tests in this line.

Mr. J. W. Kerr, of Maryland, who catalogues nearly four hundred varieties of American plums, and who is recognized as an authority by such men as Professor Bailey, Professor Waugh, and others, writes me that he much prefers good seedlings of Myrobolan to cuttings of Marianna. He says that seedlings of the Wayland group of plums make good stocks, and do not sucker, but after all his experience he comes to the conclusion that "for good, sound orchard trees, my experience begets a decided preference for trees root-grafted on peach."

Of course there are some varieties of plum that do not make a good

union with the peach, but all of the Japanese plums, French prune, Imperiale prune, Burbank's Sugar prune, and most other plums succeed on peach. A root-graft makes a cleaner, straighter tree than a budded tree, and roots will grow from the point of union, thus giving some of both plum and peach. My own experience here coincides with that of Mr. Kerr, and I would unhesitatingly recommend the peach stock for plums or prunes on any good fruit land.

What is known as "double-working" is a plan by which a tree may be made more adaptive to the various conditions. For instance, such a variety as the Italian prune (known here as Fellenberg) is grafted or budded on peach stock and subsequently again grafted some two or three feet from the ground with any other variety of plum. Thus we have an exceptionally hardy and vigorous trunk to our future tree, one that is less liable to sun-scald, to be bark-bound, or to any other ailment. Further, this enables us to grow such varieties as Robe de Sergent, Yellow Egg, etc., on a peach root, on which they could not be directly worked, owing to non-adaptability of stock and cion.

The planter should always visit the nursery from which he expects to get his trees during the growing season. He should learn what he can about stocks; in short, use his intelligence in this as in other business matters.

The nurseryman should only grow what it is for the best interests of the orchardist to plant, and he should be encouraged to do so by closer mutual acquaintance and a willingness on the part of the planter to pay a fair price for a good article.

RESISTANT VINE STOCKS.

ESSAY BY E. D. SWEETSER, OF SANTA ROSA.

My purpose in this essay is to champion a native California stock which I honestly believe will repay a thorough investigation on the part of the majority of the wine-growers of this State.

In the fall of 1868, the deadly phylloxera was probably at work in the old Appleton vineyard near Agua Caliente, in Sonoma County.

According to a well-informed pioneer of 1850, the pest was certainly multiplying in the fair vineyards of Sonoma Valley for twenty years prior to the destructive period between 1885 and 1893.

The Spanish missionaries found that valley especially adapted to the grape and drank wine from their own vines before the Bear Flag was raised at Sonoma fifty years ago. More grapes were raised in the region drained by Sonoma Creek during the sixties than in all the rest of the county. As late as 1885, Messrs. Atilla, Haraszthy, and D. D. Davisson, acting for the Board of State Viticultural Commissioners, ascertained

that there were 11,000 acres of vineyard in that district, 2,500 of which were not then in bearing. Yields of nine and ten tons of grapes were noted, with an average of over three tons per acre for a full-bearing vineyard.

The amount of destruction in eight years is shown by the canvass of A. B. Lemmon of Santa Rosa, in 1893, who found that the acreage had fallen off about one half. At that time 1,186 acres had been replanted to resistants. The yield had dwindled to about a ton per acre, against two and three tons for other districts in the county.

At first men honestly differed as to the cause of "sick" vines. Some asserted that their soil was so rich that nothing but climatic influences could check the luxuriant growth and regular crops. However, when the vine-hopper stripped the third row from the fence line, arsenic and bran were brought into use. When vines fell "sick" resistant stock was planted, or the vineyard speedily became worth less than the naked land.

Acting upon the theory that vines were starved for lack of ground, one man replanted an infested vineyard with the European vine, giving them nearly double the room; but alas, the pest took all the tender young vines before they bore a single crop.

Another selected fresh alluvial soil, gave the vines ample room, and gathered one crop and part of another before the phylloxera closed out his vineyard experience with \$40,000 on the wrong side of the balance sheet.

Emil Dresel made the first successful experiments with resistant stock in Sonoma County. A man of liberal education, he was thoroughly conversant with all of the details of wine-growing before he left Europe. With his associates he made the famous purchase of vineyard property in 1857, to which further tracts were added. The phylloxera was discovered in these in 1874 and 1875.

Experiments with resistants were begun in 1878, and in the twelve years following the leading varieties of wine grapes were grafted upon various resistant stocks and tested in infested land.

Julius Dresel, his son, wrote a special article on the "Success of Resistant Vines" in October, 1890, for the report of the State Viticultural Commissioners, advising the general replanting of dead or diseased vineyards to resistants.

Speaking of the Lenoir and Riparia he stated that they should be planted in the nursery for one year, remain two years in the vineyard, be grafted during March, April, and May of the third year, and they would bring a fair crop in the fifth year. Cleft grafting is easily learned. An experienced hand can finish from one hundred and fifty to two hundred a day. Cut the stock half an inch above the ground, then heap the soil in a mound around the graft to protect it from the wind and

sun. In September after the graft has taken, remove the mound and any roots that may have grown from the cion. Now the vine is perfect. Where grafting has been done below the surface it will be necessary to dig around the plant yearly and remove roots that will form on the cion, or else these roots will draw nourishment from the leaves to the detriment of the resistant roots below. Phylloxera will then kill the upper roots and the vine sickens and dies. Apart from the cost, Mr. Dresel further states that they met with no serious drawback in replanting one hundred and fifty acres, and it would require a tedious search to find a single dead vine.

In 1890 this vineyard produced 50,000 gallons of wine. Last year it was still thrifty and productive, amply repaying superior care and cultivation.

Riparia stock has been used to advantage upon the Senator Fair estate near Lakeville. When the phylloxera made its appearance there a decade ago, the situation was thoroughly canvassed and arrangements were perfected to replace with resistants the old vines as they succumbed to the ravages of the pest, and add enough to bring the vineyard up to a round five hundred acres. A visit there this year showed that the Riparia is making a vigorous growth and that the new vines are entirely healthy. Grafting goes on yearly as extensively as the season will permit. Blocks of vines grafted in 1898 yielded upward of a ton per acre this poor year.

Certain varieties of the Riparia are especially adapted to the deep black loam or adobe soils of the Bay region, where the beneficent fogs are almost equal to a succession of showers, but the wine-growing center has steadily receded from the bay and the phylloxera has just as persistently followed the movement in quest of its preferred food.

While the Riparia strikes diagonally into the rich soils of the Bay region, it quickly resumes its natural habit of lateral rooting when it is planted inland. In its Missouri home it is found growing along the river bank, from which it takes its name.

The Lenoir and Tokay do very well in deep alluvial soils.

The Rupestris St. George, a rock-climber, is a favorite for the drier upland soils of the interior, on account of its deep-rooting qualities.

The Rampendahl Vigorosa was first named "Vigorosa" on account of its vigorous growth, and later "Rampendahl" was affixed in honor of its discoverer, Prof. A. C. Rampendahl, of St. Helena, who found the vine on the side of a mountain ravine, while on a hunting trip in 1885. He was attracted by the beauty of its long, uniform, reddish trunk, which was from 35 to 40 feet in length, with an average diameter of four inches. Napa County was sadly in need of a reliable resistant stock to renew her fast failing vineyards and restore land values by making the ground profitable. This vine was something entirely new.

It was totally unlike the Californica. When the vine started scores of years before, it is extremely doubtful if there was a specimen of the Vinifera within fifty miles of it. Here was a vine with the vigor of the Mission under the most favorable circumstances. Climbing some twenty feet into the tree that supported this wonderful vine, Professor Rampendahl secured seven cuttings from the dense top growth.

Last October I saw a vine growing from one of those cuttings, in the midst of a vineyard that has been infested by the phylloxera for years, even before this Vigorosa was placed there, fourteen years ago. This vineyard was deemed of so little value last year that the renter had planted it to corn, and in cultivating that crop had destroyed a considerable portion of the ends of the shoots from the Vigorosa. Despite this there were fifty shoots, which, with their laterals, showed an average of 50 feet of new wood, or a growth of fully 2,500 feet for this season. One of these shoots, now on exhibition in Horticultural Hall at Santa Rosa, measures, including laterals, 54 feet. I picked a few table grapes from old vines that were struggling along 16 feet from this Vigorosa. The vineyard showed plainly the effect of the pest by missing vines, poor growth, and light bearing. Sinking a well within 80 feet of his oldest Vigorosa, Professor Rampendahl found a scanty supply of water at a depth of 22 feet.

The contrast between the old vineyard and new blocks of Vigorosa which have been planted where old vines have been removed was most remarkable. The luxuriant and symmetrical growth was wonderful. I did not note a single vine missing or any weakness in any of the Vigorosas. They stand on a rich, alluvial, well-drained soil.

The late W. H. Crabb, of Oakville, gave the Vigorosa a practical test in very dry, gravelly soil. Much of the Oakville property is of this character. The Vigorosa shows better growth in the Crabb vineyard than any other of the resistant stocks tested there. In fact, it has been specially marked on account of its exceptional growth. In many cases the shoots from it have been trained to vines 8 and 16 feet away to protect them from injury.

Luther Burbank, of Santa Rosa, says that there is no question about the resistant qualities of the Rampendahl Vigorosa, and that it is worthy of experimenting with upon its wood and root development alone.

MR. GORDON. A gentleman stated, or rather advised the grape-growers of Fresno, not to import rooted resistant vine stocks into the county until such time as they are sure they have phylloxera, for he said whenever resistant stocks are imported the phylloxera comes with them.

CAPT. H. A. BRAINARD. I know of the results in three or four or five instances in Santa Clara County, where they were the centers of

phylloxera, and I believe it was brought on rooted vines. Cuttings taken at the time cuttings are usually taken do not have phylloxera on them. I will say it is hard to take rooted vines and transfer them without transferring phylloxera. These resistant vines always have some phylloxera on them.

MR. CRAW. I would like to remind the grape-growers that it is not the phylloxera alone that they have to look out for, but they must also look out for the mysterious Anaheim disease, which attacks all kinds of stocks, resistant and non-resistant.

TWO NEW GRAPES OF PROMISE.

BY PROF. GEORGE HUSMANN, OF NAPA.

Hungarian Millennium.—In May, 1897, Professor Heiges, then U. S. Pomologist, sent me four cions of the Hungarian Millennium grape, accompanied by the following letter:

This grape was named in commemoration of the foundation of Hungary as a nation, one thousand years ago. The cions were sent by Sigismund Keekemet, Pesth, Hungary. The illustrations accompanying the cions present a magnificent bunch, with large individual berries. We retained some of the cions and propagated from single eyes, fearing there might be difficulty in getting them to unite with stocks in their apparently dried condition. We have forty promising plants which we can send out next fall, should grafting fail.

The four cions received were grafted on strong resistant vines. Three of them united well and made a strong growth, so that they already set an abundant crop in 1898. They bore a full crop this season, were ripe on the 15th of September, when the following description was taken: *Vine* a strong grower, with close joints; *Leaf* large and heavy, heart-shaped, seldom lobed; pale green, downy beneath; vine very productive—adapted to stool or close pruning, bearing an abundant second crop, of fair-sized bunches and berries, which fully ripened and proved of fine quality the last of October; *Bunch* medium to large, compact, shouldered; *Berry* large, round, resembling the Malaga in size and color; white or pale yellow; transparent, with few seeds, very sweet, of pure flavor, skin not thick but tough; will ship well; quality best.

I am fully satisfied that this will be a fine market and table grape, as it kept here in excellent condition for over two weeks. I also believe that it will make a fine white wine, though of course it could not be tested for that yet.

The Hybrid Franc.—This grape was much lauded in French reports as entirely resistant and making a choice red wine. It originated with Mr. Franc, was named after him, and awarded a medal. It is a hybrid between the wild *Rupestis* and the Cabernet Sauvignon; said to unite

the good qualities of its parents with abundant productiveness. From what I saw of it before, I was not favorably impressed, but by the kindness of Dr. A. N. Coomes, of Cloverdale, I received a small box of grapes taken from a vine grafted two years ago, which produced one hundred and twenty bunches this year, produced by spur pruning on laterals. The grapes arrived in poor condition, being over-ripe, and the following is a description of the bunch and berry: *Bunch* cylindrical, small, rather loose, not shouldered; *Berry* black, with blue bloom, round, about the size of Cabernet Sauvignon, very juicy and tender, with the flavor resembling its parent, the Sauvignon. The juice is very dark purplish with immense color, so that it stains the fingers—the darkest I have yet seen in any cultivated grape.

These two grapes may be said to represent two extremes—the one a pure white, with a heavy bunch and berry; the other small, very delicate, promising for a very dark-colored wine, and especially for blending with light-colored wines.

As all new varieties are naturally hard to obtain and expensive, I would advise our growers to use the few cions they can obtain for grafting on strong vines, which will give them an abundance of cuttings the next season—a much speedier and cheaper way to raise good stock than buying cuttings at high prices.

In reply to an inquiry relative to the value of this stock, Mr. Wm. J. Laferier, of Cloverdale, writes:

MY DEAR FRIEND: Answering your inquiry about Dr. Coomes' Hybrid Franc, I will say that I have seen it several times and even have modified the pruning at the beginning of last March. The vine (two years old) is a graft of an old Mission grown under fruit trees. It is a very strong grower, exactly similar to the Cabernet Sauvignon, of which it has retained all the characteristics. The wood may be a little darker, but it has the same nuances, same buds, grows the same way, of same size, and the fruits are much alike, at least the bunches. It has impressed me deeply and I really fell in love with it. Nevertheless, I would like to see it on its own roots before advising any one to plant it extensively. In grafting the Hybrid Franc on an old mother Mission growing under trees, Dr. Coomes has followed the queer idea of our much-regretted Mr. Crabb, and consequently if the Hybrid Franc grows well even as a graft under such conditions and treatment, what will it do under proper treatment and conditions and the care of a true vineyardist, whether grafted or growing on its own roots? As an answer to this question I would say, that if I had to start a vineyard I would try to get as many Hybrid Francs as possible, as grafting stock or as direct bearers, but especially as grafting stock, as I am sure it is thoroughly resistant. As a bearer it is very prolific, for I have counted with Dr. Coomes one hundred and twenty clusters. As a direct bearer it would be good for blending, but especially as a "doctor," for I don't believe that alone it would ever make good drinking wine. But if ever it does under proper management, it is the most valuable plant we now have in California. For my part I think its best value is as a direct bearer, and will be as a blend for Zinfandel, and if so Zinfandel is worth having, but otherwise should be replaced at once by superior varieties. I am very much interested in the Hybrid Franc, and will watch it and study it as much as I possibly can. Following is an abstract of a few notes sent to me by Professor Franc, of the nursery of the Department of Cher, France:

"The Hybrid Franc is the product of seeds of *Rupestris* planted in the department nursery in 1886. In July of the same year it had made a fine, vigorous, and straight

growth, three times more developed and higher than all the others of the same age. The first plant produced fruit in 1889. Since, its fructification has been extremely prolific. In 1890 I planted rooted cuttings in the same spots where vines had died from phylloxera. To-day (1899) these vines are extremely vigorous, and their fertility surpasses any other variety. Each vine produces from eighty to one hundred clusters of medium size, and the stock is large. The bunches are of different sizes, similar to the Pineaus, but the berries are not so tight together. The berries are spheric, longer, black, with thin skin, the juice deep red and agreeable to the taste. At the nursery the three-year-old plants have always produced from thirty to forty bunches, and those of four years old from sixty to eighty. The wine is very red, and of good taste, and is from ten to eleven per cent of alcohol. The Hybrid Franc is entirely phylloxera-proof, as I have never been able to find any phylloxera on its roots. It deserves, therefore, the first place at the top of the scale of resistants. Mildew, oidium, or anthracnose have never attacked it. It seems at home in any kind of soil, and does well even in those containing from thirty to forty per cent of lime carbonate. In swampy or damp soil it grows rapidly. It is very hardy against heavy frosts, and if its first buds are damaged by the frost, the second buds grow rapidly and give a fine crop. It roots very easily. Any cutting of two or three buds planted in any soil of medium fertility, grows readily and gives abundant roots. There is no plant in existence that can be propagated by cutting as easily as the Hybrid Franc. It will grow under any kind of training, but the best is long pruning. Such is the Hybrid Franc that I have studied with the greatest care during nine years."

After all these good words what can you do? Try and verify the facts instead of condemning in advance because they are from a Frenchman.

Resistant Stocks.—Of these, there seem to be but two prominently before the public now—the Bourquiniana class (of which the Lenoir is the most prominent representative) and the Rupestris, with its improved varieties, Rupestris St. George and the Martin. The Riparia, planted so largely in many places years ago, has failed lamentably in dry soils and the interior hot valleys, while it still flourishes well when planted in deep soils and under the influence of the moist air from the bay or the sea.

The *Bourquiniana* class has been traced back to Southern France by Professor Munson, of Denison, Texas, who claims that the Huguenot immigrants brought them to the Southern States one hundred and fifty years ago. It comprises the Lenoir, Hubemont, Louisiana, and Cunningham. Of the first, cions were sent by me from Missouri to the late lamented H. W. Crabb in 1876, who was then in quest of a coloring grape. It has withstood all the ravages of the phylloxera for the last twenty years; is a splendid, strong, and upright grower, and strikes its roots deep into the subsoil, withstanding drought remarkably well, and also makes a good, very dark-colored wine; it takes the graft readily. The other varieties are equally desirable for stocks.

Rupestris.—This class are natives of the dry ridges of southwest Missouri, Arkansas, and Texas, also known as Bush or Sugar grape. All of them have a tendency to root deeply and readily from cuttings, and therefore are especially adapted to dry soils. The cuttings, originally taken from the woods, came from seedlings with all their natural variations in growth and habit. Large quantities were shipped to

France more than twenty-five years ago, of which a few were selected by the best savants there for their vigorous and upright growth. Foremost of these seem to be *Rupestris* St. George and Martin. What I have seen of the *Rupestris* St. George is certainly very favorable. It roots readily, striking downward with its roots like a bird with its claws, and Mr. Jacob Beringer, one of our best vineyardists, has shown me vines, planted in 1898 as cuttings and grafted the next spring, which produced several fine bunches in 1899, and are strong enough to bear a full crop next year. Mr. Paul Masson, of San José, who imported it five years ago from France, is also enthusiastic in its promise, and says he wants no better stock for grafting.

I fully believe that with these two varieties as a basis our vineyards can be established on a safe footing, and grape-growing become one of the leading and most lucrative industries of the State.

APPLE CULTURE.

ESSAY BY EDWARD BERWICK, OF MONTEREY.

MR. CHAIRMAN, LADIES AND GENTLEMEN: I must crave your indulgence for departing somewhat from the printed program. I have no "written essay." I will, however, essay to talk to you on apple culture, and you must assay what I say and separate the gold of truth from the dross of error.

When I was a youngster I was taught to mind my P's and Q's. To-night I'll mind the P's only (referring to his chart*). They are the points I hope to make. The Q's shall be yours, the queries you put to me afterward.

P No. 1 is **Preliminary**. What king goes to war without first sitting down and counting the cost? So, likewise, must the would-be apple-grower. He must size up, not only his pecuniary pile, but also his pile of patience and perseverance. Can he afford to wait ten years for a harvest? Can he exercise ten years of "eternal vigilance" in his unceasing fight with legions innumerable of untiring foes? Then does he sigh to be an apple king, or will he be happy as an apple-princelet, or even a plain apple-grower? Take my advice and don't try to own the earth. Let the other fellow have a chance as well.

Then as to P No. 2—**Position**. Determine what kind of apples you want to grow and to what market you expect to ship them. If you want

*Prior to his talk on apple culture, Mr. Berwick pinned on the wall his notes—a sheet of white cloth, on which was painted in black a large capital P, the initial letter of all points touched on, this being appended below, as follows: Preliminary, Position, Plowing, Planting, Pollination, Pruning, *Pests* (painted very black), Picking, Packing, Prices, Profits, Pie, Pudding.

to hit the early market, a location for this purpose will not be suitable for main crop or late-keeping apples, and vice versa. Get as near cheap transportation facilities as possible, and don't plant your orchard too near the village school: young America has a passion for green colic. See that the soil suits the variety or varieties you fancy, and that the rainfall record of dry years in the past warrants your planting at all in that particular locality. See that the elements of fertility abound in your soil, by having thorough analyses made by competent chemists; or take the credentials the past harvests have given to that soil; but don't think any old soil is good enough for fruit trees. Don't decide in haste and repent at leisure. Don't swallow all the first land-shark tells you. Consult Wickson's "California Fruits," as to what localities are best for certain varieties.

P No. 3 is **Plowing**. All I can say is plow as deep as you can, then just a little deeper. Remember it is your last chance for unobstructed plowing of all your ground.

Planting.—As to distance, 30 feet is not a bit too far. I have some trees 15 x 30 feet, and three trees so set will not give as much fruit as one 30 x 30. I usually prefer yearling trees, and cut them back to 20 or 24 inches above ground. Early in the season, say mid-January, is the time I find best for planting in normal seasons. Should the season prove dry, give twenty pails of water to each tree soon after setting, and once or twice thereafter as occasion dictates. As to varieties, stick to staple goods that the market calls for. Spitzenbergs usually sell best; Newtown Pippins are a world-staple, and Bellflowers are in immense demand in America. White Winter Pearmain bears early and heavily, but price is not so good. Red Astrachan is a good early variety for near markets, but if left to get near ripe soon blackens in transit. Gravenstein is a first-class shipper and probably the best all around second early, if you can find a locality to suit it; it sells well.

Pollination demands that you should not plant solid blocks of single varieties, but that every third or fourth row should be of a different variety, that cross-fertilization, which is said to produce better and larger fruit, should be easily effected. This subject is fully explained in the Agricultural Yearbook for 1898, which you can obtain from your Congressman at Washington, and it would take too long to detail here. Lack of attention to this subject sometimes results in lack of crop.

Pruning varies as varieties vary. The growth of a Yellow Newtown Pippin tree and a Bellflower tree obviously demands entirely different treatment. I am a believer in low heads for the following reasons: The tree does not waste its strength in supporting a huge trunk. The wind has less leverage on a head near the ground than on a head

capping a 12-foot trunk; the branches therefore sway less and don't throw their fruit so easily. Pruning, thinning, and picking are each more readily accomplished when the head is near the ground than when a 14-foot stepladder has to be climbed to get to it. The trunk is effectually protected from sun-scald, and fruit on the lower limbs in the interior of the tree get the benefit of heat and light reflected from the ground around. Spraying is also easier. Prune for several years to make wood, rather than crowd your young trees into fruit-bearing; it will pay you in the long run.

Pests.—You will notice I have printed "Pests" very black on my chart. If you'll believe me, they are even blacker than I have painted them. They are truly the orchardists' *bete noire* (black beast). Summer and winter alike they demand eternal vigilance. Probably the worst or most insidious is the woolly aphis (called in Australia "American blight"). To kill the aphis as it appears above ground the only method I know is to dab the clusters with a brush charged with gasoline. The process is tedious and expensive, but it pays. It saves your fruit from becoming sticky and black, and your twigs from being disfigured and devitalized by a mass of unsightly excrescences. To get at the creatures below ground tobacco dust or ashes liberally applied at the root crown are both recommended. Don't use coal oil, either above or below ground; it will injure your trees.

Resistant roots, such as Northern Spy (pieces of which with auxiliary roots were sent out by Secretary Lelong last spring), should, if possible, be tried in any new plantation.

Codling moth is now present in nearly all apple sections. Bands of sacking, to which the worm resorts for pupation, are valuable, if properly examined and the worms destroyed about every two weeks. Or Thissell's trap, a globe of wire screening tacked tightly around the tree and inclosing the band in a moth-proof cage, may be used to obviate the need of searching the bands. In either case, all loose bark must be scraped off. Paris green, sprayed according to Bulletin No. 126, issued by the University of California, is still the remedy in best repute for efficiency. Lime, sulphur, and salt wash for scale, applied in winter, and Bordeaux mixture for scab when needed, are both advisable. Leaf-roller, cankerworm, and pear slug are all killed by the Paris green.

For leaf mildew, dry sulphur sprinkled through an old barley sack when leaves are damp with dew is a good preventive. Those who want to know more of insect pests should attend the forthcoming lectures at Stanford University, beginning February 5th. Professors Comstock and Kellogg are both expected to be there to instruct the visiting fruit-growers.

Picking.—If you want your fruit to keep well, pick before the seeds get quite black. Handle as you would handle eggs. Put an old sack or a wad of leaves or straw at the bottom of your buckets or baskets so as not to have the first picked apples rolling around on hard material. Handle as little as possible. Sort out any defective or wormy fruit and dispose of it at once. Don't ship it to glut the market with trash and spoil the sale of your own good fruit. Hogs, driers, cider presses, vinegar barrels are all available.

Packing.—Pack in standard size boxes, 10 x 11 x 22 inches. This size box was adopted as a "free package" when the rule was made that apple boxes should not be returned to the shipper. The box was reduced from 11 x 12 x 22 to compensate the shipper for the loss of his box by using one that held fewer apples. Now, some growers are altogether too generous—they give the old amount of apples and a "free package" as well.

Pack honestly—same size and quality throughout; but the trade expects you to pack your most highly colored fruit on top, so as to please the eye. The eye does the buying usually in all commodities. For green or yellow apples, line your boxes with red paper. White-wood boxes are preferred by the trade. Be careful not to have your boxes underfilled. At the ends the fruit should be just on a level with the top of the box, but should crown up at least half an inch in the center so as to nail every apple snug in its place, so as not to rattle in the box when it is shaken. If the end apples are too high, nailing on the lid is apt to bruise them, and on opening the box big black spots disfigure your fruit and diminish its price.

Prices are usually good if you have fine, well-keeping, bright-colored, nice-flavored fruit. If you care to study the curve of price in foreign markets, there is a chart published by Woodall & Co., of Liverpool, giving the ups and downs for the last five years on the basis of Baldwins of four classes—Canadian, New York, Boston, and Maine. Canadian are invariably highest, probably because the barrel is full weight. Early spring or late winter usually bring biggest prices. November is about the worst month to sell. Often, in our San Francisco market, Thanksgiving time is as good as any for ripe, high-colored fruit. Apples sell for cash f. o. b. Bellflowers ranged this year from 75 cents to \$1.00 a box, and the demand exceeded the supply.

Profits depend much on the grower's willingness to give liberal care to his business. Don't try to get rich by declining to spend the needful money to fertilize, prune, cultivate, and spray your orchard. Don't be afraid to thin your fruit because you think it expensive, and fear there will not be enough left to make a crop. In orcharding, follow the

scriptural injunction, "Cast thy bread upon the waters, and thou shalt find it after many days." Treat your trees in a generous fashion, and they will respond generously; act the niggard toward them, and they will repay you in kind. Some Watsonville orchards pay their owners from \$150 to \$250 an acre per annum, and their yield is so bountiful as to make fortunes for the shippers, whose business is simply to pick, pack, and ship. It is safe to say that so long as apples will bring 75 cents to \$1.00 f. o. b. there is a handsome profit for the careful grower who handles his own fruit.

Pie, next on my notes, demands your special attention. At a former convention, Mr. O'Brien suggested, to my astonishment, that it was necessary to start a campaign of education to teach the English people to eat fruit. Having myself had considerable knowledge of that people in their homes, I replied that if Americans would themselves eat fruit as the English do there would be little left to export. Pie in particular does not consist, in England, of a thin layer of over-sweetened fruit between two layers of indigestible, half-baked paste. Your English cook takes a dish of from two to four inches deep, fills it—piled up—with fruit, adding sugar and a drop of water, inverts an empty cup in the center to catch the juice, puts on a light flaky crust, and bakes till the fruit is tender and the crust a rich brown. Then this pie is not served in little saucers, but on large pie plates, and two good platefuls are allowed the hungry schoolboy.

Pudding is made in the same luscious fashion. A light crust of suet, flour, and water is spread over a cloth (previously wrung out of boiling water and then dredged with flour); apples, cored and sliced, to fill a globe of say eight inches diameter, are then placed, with sugar, cloves, and water, in the crust; the edges thereof are drawn up and welted to make them adhere and form a water-tight globe; the cloth is tied tightly and the pudding plunged into a pot of boiling water and boiled fast for four hours. Apples by the ton are used daily to make these delicious puddings for the city of London alone. If all America would enjoy these splendid combinations of flour and fruit as do the English, Americans would be a healthier, happier, and more "*pieus*" people; and apple-culture would flourish in the land a thousandfold.

So mote it be! Amen!

FOURTH DAY—FRIDAY.

DECEMBER 15, 1899.

TOPICS FOR THE DAY: *Our Export Fruit Trade;*
Export Fruit Packages;
Fertilizing and Irrigation;
The Citrus and Olive Industries.

At 9:30 o'clock a. m. President COOPER called the convention to order.

OUR FRUITS IN EUROPEAN MARKETS.

By HON. EUGENE GERMAIN, of LOS ANGELES,
Late United States Consul to Switzerland.

MR. PRESIDENT, LADIES AND GENTLEMEN: In addressing a representative body comprising the fruit-growers, packers, and handlers of our orchard products, I appreciate the fact that I am speaking to the backbone of our State—our basic industry and its defenders and champions. For California is, after all, a veritable fruit-producing and fruit-shipping empire, whose superior products have long since outgrown local dimensions, and are now entering the leading markets of the world. The Anglo-Saxon, the Latin, and the people of the Orient are all being “drummed up” to the idea of buying the California dried prune and apricot, the California dried peach, and the superb California raisin, not to mention our canned fruits, marmalades, jams, and jellies. All this intensity of purpose in extending our markets; in crowding out competition from other sources; in devising ways and means to draw attention; in hammering everlastingly at every country’s door to let in American products and California fruit, is as typical of our people as our fruit is superior. It is the leaven that is making the country of the Stars and Stripes the greatest nation on the face of the earth; it is the spirit that is making of imperial California the greatest fruit-producing portion of that same country.

It will not be in place for me here to dilate upon the present status of the fruit industry as it applies to production. That portion of our subject is now well understood by you all. We know conclusively that the matter of production, with all its attendant issues, has been gloriously and successfully solved by brainy men and bright women, who

have not only made two blades of grass to grow where only one grew before, but who have also made two drops of water to flow where none flowed before. In brief, it is no longer a question of what we can grow, but of what we can sell, and the development of reliable and profitable markets.

And that leads me to the principal point in the whole problem—namely, a broad-gauge commercial integrity—honest goods honestly packed and honestly labeled. Of course I appreciate the irony of fate that has decreed the attributes of Bret Harte's "peculiar" heathen Chinese all to the fruit-packers and fruit-shippers, and all the virtues to the fruit-growers; but that does not alter my plea for commercial integrity; it is the only road to permanent success in any market, either at home or abroad. As a basic principle the fruit-grower should produce only A 1 fruit—his market product should be free of all wormy, undersized, warty specimens, of windfalls and bruised specimens, and consist of only a prime article. This once conscientiously observed, and the battle is half won, whether the product is sold fresh, canned, or cured. This honesty and aim at superior production should be observed all along the line until the finished and packed product reaches the consumers' tables in London, Berlin, Vienna, Paris, Rome, Manila, or Hongkong. If eternal vigilance is the price of liberty, then commercial integrity and honest goods honestly packed is the price of permanent success for our orchard products in the foreign markets. This fact is inexorable; to deviate from it in the slightest degree is only to invite disaster.

These basic principles once thoroughly established in our ambitions to enter the European markets, and we shall make healthy progress. Our next step must be to study European conditions and practices. You must always bear in mind that the people of Europe are a trifle older in many ways than we are. Briefly stated, it seems to me essential that in style of package, methods of marketing, even as to methods of preparation, we should, in so far as is expedient, meet the customs and practices of the European seller and consumer. Another point is uniformity of package. Particularly does this apply to dried fruits.

These things carefully observed, and when coupled to commercial integrity, will certainly be a long step toward a permanent place for our fruits in European markets.

A residence in Europe extending over nearly five years in the consular service, where my duties put me in close touch with our trade relations with European centers, has enabled me to give this subject some attention. And let me say right here, without boasting and without fear of contradiction, that when we *do* pack our very best product honestly, and observe the eternal laws of commercial integrity to give value for value,

the products of our orchards and gardens are the peers of the world; that nowhere are there produced better peaches, prunes, apricots, or raisins. The trade is keenly alive to this fact, recognizes it, and is ready to profit by it; in short, to send us its money if we will only encourage it along correct lines.

Our prunes, apricots, peaches, pears, apples, and raisins are now to be found on sale in almost every grocery and delicatessen shop of Central Europe; the masses being thus enabled to purchase at reasonable figures, which in former years were prohibitory. Green fruits of all kinds during the long winter months are expensive, hence the poorer people cannot afford to buy them. Now, however, they can purchase California dried fruits in lieu of the expensive green article, which as a rule is utterly tasteless. When properly prepared our fruits have been found delicious, with an unsurpassed flavor, and with the added advantage that they are cheaper, go farther, and that a supply can be laid in early in the season without fear of decay or deterioration. Now, while we have succeeded in introducing our dried fruits, thereby enlarging the outlet and consequently tending to an increase of our tree acreage, enhancing thereby the value of our lands and taxing capacity of our commonwealth, we must try not only to hold on to the territory we supply, but ought to increase our exports annually. This, however, cannot be done with the methods employed.

This is certainly a great advantage, and if honestly followed up must lead to permanent results far-reaching in their consequences, meaning not only prosperity in the exportation of our orchard products, but an augmented prosperity at home, as it naturally leads to an increase of land values, of acreage under cultivation, and of healthier conditions all along the line.

We must sell first-class, medium, and inferior fruits for what they are and at graduated prices in accordance with quality. The label on a box must never belie its contents. Foreign purchasers must know that they will get just what they buy and nothing else. We are grading our prunes and denominate same by sizes, each size being offered at a different figure; or, in other words, the price is made on a basis of a certain size, with a stated increase in price for the larger fruit. The prune business has, under this mode, proved satisfactory and hardly any complaints have been received. Why not do likewise with apricots, pears, peaches, and other dried fruits? Why not grade all according to the size, color, and quality of the fruit, and brand the boxes "Fancy," "Extra," "Choice," "Standard," and "Common," each of these brands representing what the denomination on the box implies? Why not have the authorities appoint sworn inspectors, whose duty would be to inspect all dried fruits before boxing, and brand the boxes according to grade and quality? A law ought to be passed prohibiting

the shipping of dried fruits unless accompanied by an inspector's certificate showing that the fruit has been properly graded according to law.

United States Consul-General Mason, stationed at Berlin, in a recent report very ably called attention to our mode of packing fancy fruit on tops of boxes and then filling in with rubbish. Let me briefly and specifically quote his exact words, because they substantiate and emphasize all I have already said:

In respect to dried apricots, pears, and peaches, it may be said that the fruits from the Pacific Coast dominate the control of the markets of continental Europe. Nothing comparable with them in point of size, flavor, tenderness, and general excellency was ever seen in Europe until they were imported. They established new standards of excellence, and created a new market which, if the trade is properly managed, they can hold in future against any competition. The higher grades of California prunes are a revelation to European consumers, being not only cheaper than French prunes of approximate quality, but of such excellence that they are sold in small, ready-made packages, and eaten raw as sweetmeats, like candy or caramels. In a season when the Bosnia prune crop should fail entirely, as sometimes happens, American prunes, even of the smallest grades, would control the market of Germany.

Is there any complaint as to dishonest packing or grading of dried fruits from the United States, and what needs yet to be done to improve the trade and render it stable and permanent?

There has been to my knowledge more or less complaint in regard to packing and assorting of American dried fruits. I never have investigated a case of this kind in which the complaint did not prove to be fully sustained. I examined yesterday the first box of dried apricots from this season's crop, which just arrived from one of the foremost packing firms of California, a house whose brand on the packing case usually is accepted as a guarantee of quality. On removing the lid the fruit appeared in neatly arranged layers; the pieces large, firm, and of uniform size and color; the dried flesh as translucent as gelatin and of fine aromatic flavor. The box being turned over and the bottom removed, a wholly different picture was revealed. There the fruit had been loosely thrown in in pieces of all sizes, mainly small, irregular in shape, and of all shades of color, from the golden brown to deep mahogany, many pieces showing by their form that they had been saved from apricots which had been partially decayed. All these were good enough to be eaten, but were not what the buyer ordered and paid for, nor what the seller pretended to sell, and as the disappointed importer somewhat bitterly remarked, "If this is what we get from a first-class exporter, who puts up his own fruit, what may we expect from jobbers who gather up and export the miscellaneous products of small packers and individual farmers?"

The truth is, and may as well be stated with plainness, the dried fruit industry of the Pacific Coast is not yet organized and managed as it should be to achieve the best results and give its European export trade the permanence and stability which it deserves and ought to attain. The fruit farmers of the Pacific Slope have before them an unparalleled opportunity, but their fruit made a market abroad on its own merits and not by virtue of any especially able or foresighted management.

Complaints also have been made that old, left-over dried fruits from the previous year have been steamed, repacked, and shipped to Europe as part of the new crop. To what extent this charge is true, it would be difficult to say, but if it ever has been done, or any other artifice practiced which is below the accepted standard that business merits, all such methods should be stopped.

Other consuls have from time to time reported the same thing, and during my five years' tenure of office in the consular service I had occasion to verify these criticisms. I have in my reports to the Department several times called our packers' attention to these facts.

Touching this rather suggestive phase of the subject, let me give just one personal incident which may relieve the packers and shippers of any facetious reflections I may have made in a previous paragraph, which goes to prove that all flesh is grass after all. During the early eighties I exploited the shipment of early potatoes to the East; in fact, built up a good trade in that line, and was, you might say, doing well. But suddenly I received dispatches to cease shipping marbles. Now that was soothing and pleasant. An investigation into the field, made *sub rosa*, brought to light a curious fact or two. For instance, some growers were packing potatoes by the stove-pipe method. Now that was curious, but very simple, though remindful of Dickens' Artful Dodger. The method was to fill the bottom of the sack with a layer of good size potatoes, then insert the stove-pipe, fill in with big potatoes all around it, then fill the pipe itself with small potatoes—what my telegrams designated as marbles—then pull out the pipe, fill the top of the bag with larger ones again, and, presto change, we have a splendid sack of big potatoes. The moral is, do not ship marbles with soil products; it doesn't pay.

These few cursory remarks lead up to the observance of a few things we *must* do in order to gain permanent success in exporting fruit products, and also to some we must *not* do.

The teachings of Rudyard Kipling apply forcibly to everyday business, viz: Give the world the very best there is in you, or it will turn you down. Grow, pack, grade, and ship only the very best fruit you can produce, and the European markets are yours; observe a strict commercial integrity, and they are yours to keep for all time.

IRRIGATION.

By S. M. WOODBRIDGE, PH.D., OF LOS ANGELES.

Irrigation is the artificial watering of the soil for the production of crops.

Although irrigation is looked upon by many as a new proposition, it is, in fact, the most primitive method of producing crops; that is, it is the oldest method, for according to written history, "A river went out of Eden to water the garden." Furthermore, it was the only method of producing crops for the first third of human existence; for, from the same authority above quoted, we read: "The Lord God had not caused it to rain upon the earth." As it appears that water was only distributed through irrigating ditches for the first third of the world's written history, it is not improbable that when Abel took his sheep down to Cain's irrigating ditch to water them, he made this water business a pretext for "doing up" Abel. The precedent of making trouble over water thus established, has been pretty well followed down to the present time.

The first rain that we have any record of was in the year B. C. 2349,

and there has been nothing equal to it since; that rain is commonly known in history as The Flood. Agnostics think that they have scored a point when they state that the properties of light must have been just the same before the flood as since, and claim that the bow must have existed from the beginning; but they overlook the fact that the whole agricultural business was run on an irrigation plan and that there was no rain previous to the flood.

Water for irrigation purposes is derived from three sources in California:

1. Mountain and other streams.
2. Wells—flowing or pumped.
3. Reservoirs.

Of the above named sources, it would seem that the reservoir is the most important, for every available foot of land can be made a reservoir. In the technical sense a reservoir is "a basin, either natural or artificial, for collecting and retaining water or other liquids."

There are two essentials to make a reservoir a success: First, there must be means for collecting the water; and second, means for retaining it until it is needed. When we speak of soils and mountains as reservoirs, the word is not used in the technical sense, for I believe that the great volume of water that continues to flow from our mountains is held in the interstices of the soil and rocks.

My own investigation shows that our different soils hold from 17 to 26 per cent of water, although some authorities make a much larger percentage.

Different kinds of soils vary in regard to their porosity, and the same soils vary to a very great degree in regard to their power of absorbing water, depending upon the amount of moisture already contained in them. For example, on the red mesa land at South Pasadena, where the soil was practically dry, containing a little over one per cent of water when the water was turned on, it only absorbed one twentieth of the amount of water in a given time that was absorbed by soil of the same kind which contained at the beginning of the experiment about eight per cent of moisture. This may be an extreme case, but it is remarkable how much water will run off from the soil when it is dry. We see the same effect if we dip a dry feather in water; when we pull it out it comes out dry. But if we moisten it, and then dip it in water, it comes out saturated. It seems necessary, then, in order to have our land absorb the maximum amount of water in the minimum amount of time, that the soil should retain a goodly percentage of moisture. Or, in other words, if we wish to fill our mountains and soils with water and preserve the greatest amount of rainfall, they should be kept moist.

Having shown that it is necessary to have some moisture in the soil in order to have it absorb the rainfall readily, and thus make our

mountains and arable lands reservoirs, let us look at the other side of the case—that of retaining the moisture; and I regret to say that the experiments are not so complete and numerous as they should be, as they have only been fairly begun.

In the first place, let me call attention to the fact that capillary action in soil is in every direction from a given point. Water spreads out sidewise as well as upwards and downwards by this action. Soil that was thoroughly irrigated was taken, and the amount of water determined at 26.12 per cent. Some of this soil was put in beakers, filling them about half full, and placed in the laboratory. On the following day, 66 per cent of the moisture had dried out. Tin cans without either bottoms or tops were pressed down into the soil and the soil taken from the sides of the cans so that a slide could be passed under them, thus cutting off connection with the earth beneath. It was found that about the same amount of water had disappeared from these cans as had disappeared from the beakers. Where these cans had been pressed some inches below the surface of the ground and the soil raked or cultivated above them, there was practically little loss of moisture. Conclusions from these facts are very obvious: that in order to make reservoirs of our mountains and arable lands it is necessary to keep them in such a condition that they will readily absorb water and retain it, and this result can be brought about only by keeping them covered with the product of growth, or in other words, with forests, as these forests and their products make a covering or mulch for retaining moisture. And the same reasoning pertains to our cultivated lands: that in order to retain the moisture we must keep them well cultivated.

It is a pity that there is no uniform unit of measure upon the metric system for stating a definite amount of water.

We are at present compelled to use the arbitrary and oftentimes puzzling term of acre foot or inch, second foot, weir inch, and miner's inch. An acre foot of water is the amount of water that will cover an acre of ground one foot in depth. A second foot is a cubic foot of water per second. A miner's inch of water is the amount of water that will flow through an inch square hole in an inch board under a pressure of four inches in twenty-four hours; such an amount of water has been determined legally to be 12,960 gallons.

I would venture to suggest that the miner's inch, having been legally established to be a definite amount of water, be used as the universal unit of measure in irrigation matters, and the following table, based upon the French decimal or metric system, be used in conjunction therewith; the Greek prefixes being used to denote the multiples and the Latin prefixes the fractional parts of the unit:

The Greek prefix	Deka	to mean	10	units.
" " "	Hecto	" " "	100	" "
" " "	Kilo	" " "	1,000	" "
" " "	Myria	" " "	10,000	" "
" Latin "	Deci	" " "	$\frac{1}{10}$	of a unit.
" " "	Centi	" " "	$\frac{1}{100}$	" " "
" " "	Milli	" " "	$\frac{1}{1000}$	" " "

Proposed Table for the Measurement of Irrigation Water.

1 Myria-inch	=	10 Kilo-inches	=	10,000 inches.
1 Kilo-inch	=	10 Hecto-inches	=	1,000 "
1 Hecto-inch	=	10 Dekka-inches	=	100 "
1 Dekka-inch	=	10 inches	=	10 "
1 Inch	=	10 Deci-inches	=	1 inch.
1 Deci-inch	=	10 Centi-inches	=	$\frac{1}{10}$ "
1 Centi-inch	=	10 Milli-inches	=	$\frac{1}{100}$ "
1 Milli-inch	=		=	$\frac{1}{1000}$ "

Table of Equivalents.

1 Myria-inch	=	129,600,000	gals.
1 Kilo-inch	=	12,960,000	" "
1 Hecto-inch	=	1,296,000	" "
1 Dekka-inch	=	129,600	" "
1 Inch	=	12,960	" "
1 Deci-inch	=	1,296	" "
1 Centi-inch	=	129.60	" "
1 Milli-inch	=	12.96	" "

Water is contained in the soil in three different states, as—

1. Hygroscopic water;
2. Capillary water; and,
3. Water of percolation.

Hygroscopic water is that which is not perceptible to the senses, but is appreciated by a gain or loss of weight in the soil which acquires or is deprived of it.

Capillary water is that which is held in the fine pores of the soil by the surface attraction of its particles.

Water of percolation is that which fills the interstices in the soil and would percolate through or filter out from the soil.

An acre of ground contains 43,560 square feet. Allowing 100 pounds per cubic foot of dry soil, we would have 4,356,000 pounds every foot in depth. Let us make a reasonable assumption as to the reservoir capacity of our soils. They will hold as hygroscopic and capillary water about 20 per cent of their weight. Assuming that our soils are only wet to a depth of ten feet in the rainy season, we would have 8,712,000 pounds of water stored in each acre of ground, or more than ten times the amount of water necessary to raise 20,000 pounds of oranges per acre, if all the water was available, which it is not.

Professor King has estimated that it takes to raise different crops, such as hay, barley, clover, etc., from 300 to 500 tons of water to make

one ton of dry matter. My investigations lead me to think that it takes much less to raise fruit—about 200 tons of water to raise one ton of oranges or lemons. Now, allowing 20,000 pounds of fruit per acre, let us see how far one inch of water would take us. Oranges contain in round numbers 18 per cent of solid matter and 82 per cent of water; therefore, 20,000 pounds of fruit would contain 3,600 pounds of dry matter. If we multiply this factor by 200, the number of pounds of water it takes to raise one pound of dry fruit, and, with this result, namely, 720,000, divide the total number of pounds in an annual inch of water, we would get 54.5, which would represent the number of acres of oranges producing 20,000 pounds of fruit per acre, that one inch perpetual flow would supply, making no allowance for water put into the ground by winter rains.

Surface Irrigation.—There are four systems of surface irrigation in general use in Southern California. The first method is a basin method, where they cover the whole of the ground. A double furrow runs down between every other row of trees, the furrow being large enough to carry from 15 to 50 inches of water. Let us trace this stream starting from the head ditch: The attendant breaks down the furrow enough to let all the stream flow into the first basin, requiring from one to three minutes to fill it, according to the size of the stream and basin. Every other tree is irrigated until the last tree is reached, when the attendant works back, irrigating the trees he omitted on his downward course; thus, when the last tree is irrigated in both rows, the attendant is back at the head ditch, where he can turn the stream between other rows without loss of time. The cost of making these basins is variously estimated from \$1.50 to \$2.50 per acre.

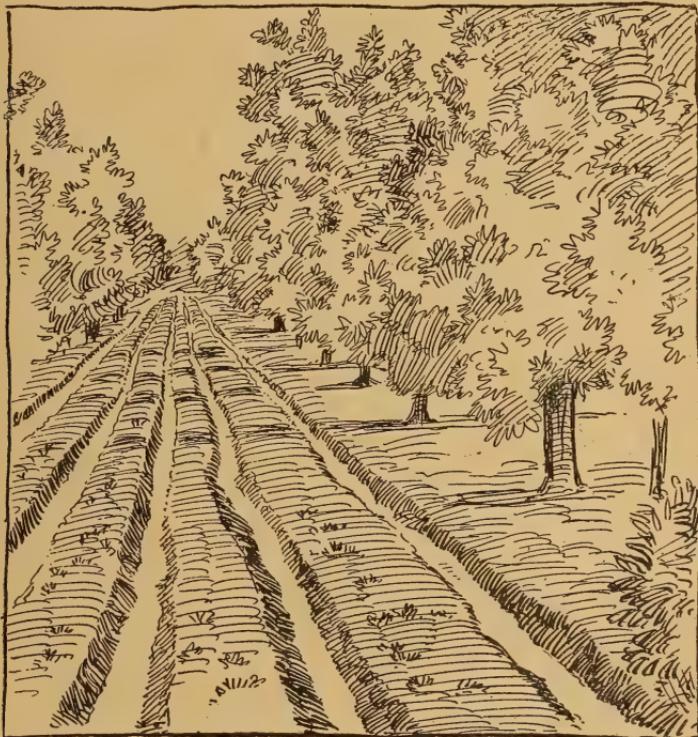
The second method is also a basin method, the basins covering the whole of the ground, but without furrows. The water is run into the first basin until it is filled; then a portion of the lower side is broken down and the water allowed to flow into the next basin; and so on down through the whole row. When the last basin is filled and while the water is still running, the attendant goes back to the head ditch and turns the water into the next row of basins.

The third method is where the basins are made only over a portion of the ground, thus omitting to irrigate a part of the land.

The fourth method is called the "Modern Method." It consists in having a head ditch at the highest side of the orchard and running the water down through small furrows to the lower end. The number of furrows used varies from one to eight. It is an easy, convenient, and cheap method.

Inasmuch as the roots of trees in an orchard form a perfect network through the whole soil, it is necessary to get an even distribution of the required amount of water over the whole of the land, *i. e.*, where surface

irrigation is resorted to. This certainly can be done by the basin method first above mentioned. This method, although perhaps the oldest in use, finds many objectors, who say it is impracticable, expensive, and even impossible in some instances. There are those who maintain that it washes the ground too much, and that where the ground is rolling and the basins have to be made small too much expense is incurred. The third method is to be condemned in every instance. For, as has been observed, the roots of trees form a perfect network throughout the soil and these roots are feeders. If, therefore,



THE MODERN METHOD—SURFACE IRRIGATION.

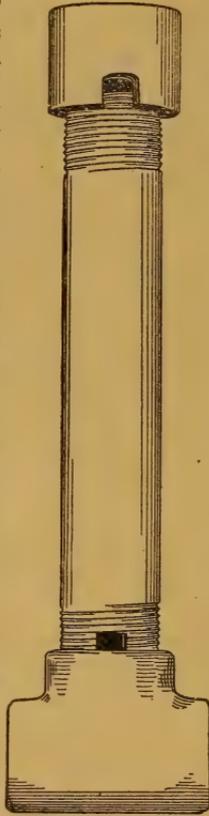
the roots which have grown during the rainy season into the unirrigated portion are left without water and the soil becomes dry, they languish and die. The fourth method, called the "Modern Method," should never be resorted to excepting where absolutely necessary, and then the head ditches should be very near together and the furrows small and numerous. This method is very easy, popular, and cheap, and what is more the pity, many people are in the habit of so irrigating.

The different methods seem to be persistently followed in different localities in the State.

Where surface irrigation is practiced and where the ground is kept cultivated to the depth of six inches, it follows from the premises that from

one half to two thirds of the water (allowing one miner's inch continuous flow to ten acres of ground) is wasted—for the portion of the water which is soaked up by the cultivated ground is lost to the tree, because in the cultivation the moisture in the cultivated soil goes off into the air. To save this immense proportion of loss, it follows then as a natural sequence that the water must be placed below the cultivated ground, *i. e.* sub-irrigation must be resorted to.

Sub-Irrigation has always given satisfactory results as to a proper distribution of water, but patented has been unsatisfactory economic standpoint, owing the pipes have become broken or filled no underground valve have economical and at the same time to roots. We have tried and almost perfect system an orchard be piped between pipe at the depth of about surface, and that a hydrant the square formed by four very cheap and simple device but a short piece of pipe threads on one end, say seven slots cut down through a pipe is screwed down into a start the flow of water, this partially unscrewed, which permits through the slots. Any through the slots is effected is turned off by screwing a depression about four inches deep is left around each hydrant turned on sufficiently when this depression. Rev. C. F.



SLOT VALVE.

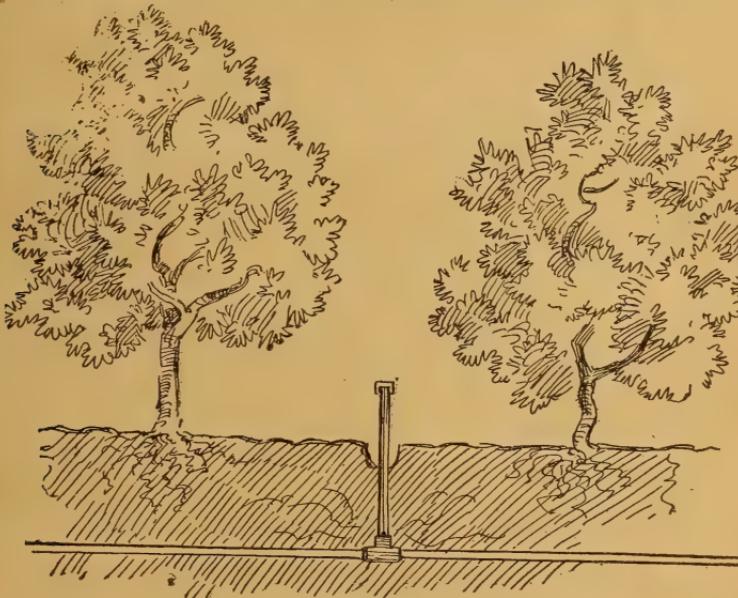
Loop has such a system of sub-irrigation at Claremont, except that the valves are much more expensive, costing about 35 cents each. Dr. Loop says that the system has given him perfect satisfaction, and he is of the opinion that he does not use half the amount of water that he formerly used, and that he saves more than half the expense ordinarily incurred in cultivation, etc.

Other systems have been invented, and some patented, but all, so far as known to the writer, have proved failures. From the best information that can be gathered, all cement systems have proved failures; although, when first put in use, they did the work designed for them with satisfaction. Cement pipes have not proved a success, owing to the fact

the system heretofore practiced from a practical and to the fact that the pipes filled with roots, and clogged—ing been invented that was time tight and impervious can recommend as an absolute system of sub-irrigation, that each row with one inch iron eighteen inches from the be placed in the center of trees. This hydrant is a vice. It consists of nothing with an extra number of ten or eight; there are two portion of the threads; this tee in the main pipe. To pipe with slots in it is permits the water to run out thing that would grow ively cut off when the water down the pipe. A depression and three inches in diameter, and the water is it appears at the bottom of

that they break and become leaky, necessitating constant repairs. And they also become filled with roots. Experiments with cement pipes were begun in California about twenty-five years ago, and have continued to the present time, and yet the writer does not know of a single orchard, nor can he get any trace of one, that is being irrigated now by such a system that has been in existence five years.

Mr. James Campbell, of Pasadena, tried a system of sub-irrigation on two and one half acres of orange orchard, some twelve or fifteen years ago, with three-inch continuous cement pipes laid twenty inches deep. He says the system worked with perfect satisfaction for three or four years, which was as long as the pipe kept in good order. He does



SUB-IRRIGATION.

not think that he used one third the amount of water that he did by surface irrigation. Indeed, he could not have used as much as one third, for he states that the reservoir from which he irrigated his two and one half acres contained but 10,000 gallons of water, which would only be at the rate of 4,000 gallons per acre per irrigation; allowing two irrigations per month, it would only be 8,000 gallons per acre, or equivalent to one miner's inch continuous flow to about 48 acres. He also says that the labor for cultivation was much less than in orchards irrigated by the surface method.

There are several patented systems, which require the underground discharge to be surrounded with coarse stones or gravel, or both, and even with cement flagging under the outlet; but all these only increase labor and expense without any corresponding good to be gained thereby. Elaborate tests in actual practice have shown that the water will seep

out in the same length of time to a radius of ten feet from a valve buried in the ground, or from a mere post hole three inches in diameter, or from a hole that is one foot in diameter, or from a hole that is two feet in diameter. This may seem a strange statement, yet if we will consider that the area of a circle 20 feet in diameter is 314 square feet, and that by making a hole 2 feet in diameter we would only take away 3.14 feet, or about one per cent of the soil within the larger circle, it is apparent that little is saved in point of time by making a large hole to be filled up with extraneous and perhaps expensive material.

As the cost of such a system as is recommended above would be about \$100 per acre, it still puts the system beyond the reach of most of the ranchers, although the annual saving would be about 15 per cent on this investment in labor, etc., without any reference to saving the water. It is also impracticable where the water is distributed in open ditches, as it requires some little pressure in order to distribute the water through an inch pipe. Other means less expensive were therefore tried, one of which has been quite successful. This system is called

Inter-Irrigation.—It consists in distributing the water above ground, but in disseminating it below the surface. This is done by means of holes the width of an ordinary shovel dug to the depth of from 10 to 24 inches, according to the nature of the soil, in the center of each square formed by four trees. On ground that is level or nearly so, a single furrow is run down a little to the side of these holes; a furrow at right angles to that furrow is dug to the hole, and the water is allowed to run in and fill up the hole, which is kept full during the period of irrigation. The water then passes on down the furrow and into the next hole, and so on to the last hole in the orchard. Where the water can be run diagonally through an orchard, or if the orchard is set quincunx, there need be but one furrow in every other row. Where the ground is rolling, or on side hills, it will be necessary to have wooden or other troughs or a system of movable pipes to keep the ground from washing, and it is always best to have troughs or pipes. The troughs in use at Lenapuate are made from wooden strips 1 x 2 nailed on strips 1 x 3, making a V-shaped trough. No joints are required, as a single length is run from hole to hole. The cost of such troughs is about \$18 per acre where they run on the squares, or \$12 per acre where they are run every other row diagonally. The pipe used at Lenapuate, where the water is delivered under pressure, is one-half inch iron, with a valve, such as is above described, over each hole. The pipes are connected and disconnected by means of a Wilgus union. Both troughs and pipes can be easily transferred from one portion of an orchard to another.

As to the objections to the system, there are apparently but two. The first and most important objection is the difficulty of getting a sufficiently long run of water to be able to irrigate in this manner; for

it takes from two to four times as long, according to the nature of the soil, to irrigate by it. We think this objection would in practice amount to little or nothing, if a community should adopt the system. If the existence of an orchard depends upon it, or the successful maturing of a crop, we apprehend that arrangements could be made for giving the individual rancher his water in from two to four times the length of run, cutting him down in quantity correspondingly.

It has been ascertained that soils differ in regard to their porosity and, consequently, in their absorbing power. The extremes seem to be, in different soils, that a single hole will soak away from 2 to 15 gallons of water per hour, this largely depending upon the amount of moisture that there is in a soil—a perfectly dry soil requiring much more time than the soil containing six to eight per cent of moisture. This must



INTER-IRRIGATION.

be determined by each rancher for himself. It is done by placing a barrel containing a known quantity of water, on the ground at the side of the hole, with the faucet over it; allowing the hole to be filled with water from the faucet to the desired height, regulating the flow so that the water will stand at this height in the hole. Assume that you desire to soak away 389 gallons in this hole (the equivalent of one miner's inch continuous flow to ten acres where there are one hundred trees per acre), and that it took 38.9 hours to soak away the 389 gallons; this would be at the rate of ten gallons per hour. One would then know that such irrigation must continue by this system for 38.9 hours in order to get what would be equivalent to one miner's inch continuous flow to ten acres.

And the second objection is, the trouble of cultivation where there are troughs and holes through an orchard. But if the troughs are set deep

enough, there is little objection on this score. The holes form little or no objection. It must be remembered that not one-half the cultivation is necessary as in the other system. Besides, there is nothing good in this world without its corresponding evil.

It has been found that orange trees that are twenty years old and upwards, which were wilted, were revived by the application of two hundred gallons of water per tree in this way, and remained in a fresh condition for over thirty days. How much less might have answered the purpose will be determined in the future by actual measurement.

The system of sub-irrigation or inter-irrigation is especially adapted to small flower-beds and garden purposes generally.

Recess till 2:30 o'clock P. M.

AFTERNOON SESSION—FOURTH DAY.

FRIDAY, December 15, 1899.

At 2:30 o'clock the convention reassembled. President COOPER in the chair.

REPORT OF COMMITTEE ON MR. ADAMS' REPORT.

WM. JOHNSTON, EDW. BERWICK, and WILL A. COULTER, as the committee to which was referred the report of Edward F. Adams on the proposed free public market in San Francisco, submitted the following report:

Your committee, from the data at hand and from information secured on such short notice, believe that the establishment and maintenance of a free public market in San Francisco, regulated and conducted in accordance with the provisions of the Act of the Legislature of California for that purpose, will be of great benefit, not only to the producers of the products to be sold, but to the citizens of San Francisco who are the purchasers of such products.

Your committee is advised and believe that the provisions of the law providing for said free public market have been ignored, or feebly and ineffectually carried out, by the officials charged with that duty, either through apathy and indifference, or some claimed defect in the law, or some reasons or motives unknown to your committee.

Your committee therefore report and recommend the adoption by this convention of the following resolutions:

Resolved, That the establishment of a free public market in the city of San Francisco, under the terms of the law passed for that purpose, is a duty imposed, not only by legislative enactment, but by the interests of thousands of producers throughout the State and of thousands of consumers within that city.

Resolved, That the Board of State Harbor Commissioners be appealed to to carry out the provisions of the law, and if in their judgment further legislation is necessary, that they recommend such additional enactments as will enable them to speedily and effectually establish such a free public market as the producers and shippers desire.

Report and resolutions adopted.

SELECTION OF THE NEXT MEETING PLACE.

PRESIDENT COOPER. We will now take up the selection of the next meeting place of this convention. You will understand that these conventions are held for the benefit of the fruit-growers throughout the entire State and are not local organizations. They are held under the auspices of the California State Board of Horticulture, and it is the desire of the State Board that the people of the State shall make requests where these meetings shall be held. It is not a local affair, and the meetings ought to be held in the central, the middle, the northern, and the southern parts of the State. That is to the pleasure of the fruit-growers of the State. This being the central part of the State, it was held at San José. The last one was held in the southern part of the State north of the Tehachapi. The next one ought to be held in the northern part of the State, their needs being equally great in that section. I will say that the motion or request must be to the State Board of Horticulture to hold a convention at any certain point, as the Board claims the right to change the place if the conditions and circumstances are such that it will make it necessary to choose some other place.

MR. HUTCHINS, OF MARYSVILLE. Mr. Chairman and Gentlemen of the Convention: I desire to place in nomination for that distinguished honor—for I do think it is an honor to any city to be chosen as a meeting place for such a body as this—the City of Marysville.

MR. SWEETSER, OF SANTA ROSA. Mr. President: It affords me much pleasure to nominate the "City of Roses"—Santa Rosa.

On a vote being taken, Marysville was selected.

ACCOUNT OF WORK OF THE BLASTOPHAGA, OR CAPRI FIG INSECT, IN FERTILIZING THE SMYRNA FIG.

ESSAY BY GEORGE C. ROEDING, OF FRESNO.

California has established such a worldwide reputation as a producer of high-grade fruit, both green and dried; our fruits have come into such active and successful competition with similar varieties grown and imported from Europe, that it seems strange indeed that, with the well-known activity, energy, intelligence, and persistency displayed by growers in dealing with horticultural problems, we have not succeeded

in placing on the market, long before this, a fig as palatable and delicious as the imported Smyrna fig is known to be.

Importations of cuttings and trees have been made by various California parties for the past twenty years, but the most of those who were interested in the matter, failing to succeed, attributed their lack of success to the climate, and ceased to experiment or investigate the matter any further.

In 1886 Mr. Frederick Roeding, proprietor of the Fancher Creek Nursery, having become convinced that the White Adriatic fig was a far inferior fruit to the imported article, decided to send one of his men to Smyrna to investigate the matter and at the same time bring home cuttings of figs and other fruits adapted to this climate.

The difficulties in obtaining information and securing cuttings were many, but after a journey of seven months, the cuttings reached Fresno in June, 1887. The cuttings consisted of 15,000 figs, as well as several thousand cuttings of olives, pomegranates, etc. They were packed in moist sawdust and were found to be in excellent condition on arrival, but owing to the lateness of the season only a small percentage grew.

The following year the first orchard of twenty acres, consisting of forty Capri figs and the balance Smyrna figs, with the exception of some seventy-five Smyrna table figs divided into three varieties, was planted by the Fancher Creek Nursery. In 1889, twenty acres more, and in 1891 an additional twenty acres were planted.

The final planting was made on the strength of my having succeeded in producing figs by artificial pollination. Becoming satisfied that I had the genuine fig of commerce, I did not hesitate to increase my acreage, for having the Capri fig and the Smyrna fig, I anticipated no difficulty in introducing and establishing the fig insect, "Blastophaga."

The first Smyrna figs grown in the United States were produced in 1890 on the Fancher Creek Nursery, the pollen having been taken from the June crop of Capris and introduced into the Smyrna fig by means of a toothpick. As a result of this artificial fertilization I produced four figs, and in 1891 one hundred and fifty fruits by using a glass tube drawn very fine at one end to introduce the pollen. After gathering a little of this pollen in the end of the tube, I inserted it into the orifice of the fig and then blew into it. This method was a great improvement over the old one. Samples of the dried fruits were sent to a number of prominent fruit-growers, and among them, Mr. B. M. Lelong. The following is a copy of his letter to me:

SAN FRANCISCO, October 4, 1891.

I have very carefully examined the Smyrna figs which you left and which were artificially caprifried by you. I desire to congratulate you upon having produced the first fig containing seed of fertile kernel. I have also carefully compared them with other figs, such as the White Adriatic, and even with the imported, and I find these to be of superior

flavor and very meaty. I think that in your experiments you have struck the keynote to success, as to-day our best dried figs do not come up to the standard in quality, for the reason that as yet we have not the true variety as grown in Smyrna. By that I mean to say that the true Smyrna fig has not yet borne fruit like that borne in its own country. The conditions, of course, will be understood as they are being looked into.

That you have made a success in fertilizing the fruit of the Smyrna fig cannot be doubted, as the seeds were as fertile as those from Smyrna.

All figs fertilized in the manner described remained on the trees, and a week after they had been pollinated a marked difference could be discerned between them and the unpollinated fruits. The former commenced to develop and fill out and assumed a fresh, deep green color, while the latter turned a dull yellowish green, showed their ribs very distinctly, and when about three quarters of an inch in diameter, dropped from the trees.

The results of the artificial pollination proved conclusively to my mind that the Capri fig and Blastophaga were necessary for the successful production of the Smyrna fig; and having convinced myself that I had the genuine Smyrna fig as well as the Capri trees, my next step was to introduce the Blastophaga, in which I anticipated no great difficulty. That my optimistic expectations were not to be realized as quickly as I thought, the following will show.

In the year 1892 several consignments of figs containing insects were received from Smyrna, most of which were in good condition. On cutting the figs open hundreds of insects emerged, flying around in a large Mason jar in which I had placed the fruit, and these insects were afterward transferred to a covered tree.

In 1893 a gentleman was sent to New Mexico and Arizona in search of Capri figs, it having been reported to us that the trees grew in certain localities there, but he found neither trees nor insects.

In the seasons of 1894 and 1895 several consignments were again received from Smyrna, one being received in the latter part of March—and it was through this shipment that I first drew my conclusions as to where the insect hibernated during the winter months, a matter on which I could never get any information, entomologists, as well as all writers on the subject, evidently being in the dark. Knowing that the *Ficus carica* was a deciduous tree, I concluded that the figs received must have been carried over on the tree during the winter months, and following out these deductions I planted in 1894 a number of Capri trees in a very much protected place in the foothills about twenty miles east of Fresno. In the winter of 1897-98 one of the Capri trees carried a number of figs through the winter, which strengthened my belief that it was in the fig that the insect hibernated.

In 1896 I received a number of consignments of Capri figs from Mexico, and in 1897 I again attempted to introduce the insect from that locality. Mr. Koebele, then in the employ of the Hawaiian Govern-

ment, kindly volunteered to render me every assistance in his power to bring the matter to a successful issue. He also sent me a number of Capri figs containing insects, but with his, as well as with all other shipments received, I failed to establish the insect.

Mr. Koebele, in his correspondence with me, finally stated that he was well satisfied that each variety of *figus* had its own species of *Blas-tophaga*, and in his opinion if I wished to succeed it would be necessary to import the insect from the locality from which my Capri fig trees had been sent.

The Division of Entomology of the United States Department of Agriculture had been fully cognizant of the importance of this matter for a number of years, but no active steps were taken by it until a letter from the California State Board of Trade, to the Hon. James Wilson, requesting his assistance, was written. This letter was referred to Dr. L. O. Howard, Chief of the Division of Entomology, who at once placed himself in communication with Mr. Walter T. Swingle, a member of the Division of Botany, who was then traveling in Europe.

Mr. Swingle had made some investigations into the matter of caprification on his own account before he received any communication from Dr. Howard, and the first consignments, sent by him in 1898, were practically made at his own expense.

The first shipment was received April 15, 1898, and I made the following note at the time: "Received first Capris wrapped in tinfoil and packed in cotton. Hundreds of insects emerged, but all died the following day."

Other shipments were received early in May, but not in a good condition as the first. None of the insects, however, from any of the shipments, established themselves.

Figs packed in tinfoil in 1898 arrived in such good condition that all the consignments sent in 1899 were packed in this manner, the first shipment of forty figs, arriving April 6th. The fruits received were cut open, placed in fruit jars, and then hung in a Capri fig tree growing in the orchard, the same having been previously prepared for the insects by covering with sheeting. Five other shipments were received between the date named and April 15th, the greater part of the fruits being handled in the manner described.

I had made so many failures in attempting to introduce the insect in previous years in this manner, that I had very little confidence in the success of this venture, and the following is an extract from my letter to Dr. Howard:

I will cut the figs open and place them under the wild fig tree, which I have covered, but I anticipate no results, and I do not think a success will be made in this matter until fig trees, with the figs on the branches, are sent out here during the winter months. If this is done the insects will have a chance to develop in a natural way, and, being full of vitality, will enter our wild figs here just as they do in their nativity, passing from one crop of Capris to another.

Imagine my surprise when one of my employés, who was engaged in artificially pollinating Smyrna figs with a glass blowpipe, toward the latter part of June, 1899, brought me a Capri fig which he thought contained seeds, but which, on examination, I found were galls. I immediately made an examination of the tented tree and also of another Capri fig adjoining it, and discovered that the two trees had about forty fruits containing insects. The insects had no doubt gone into the figs on the tree adjoining the tented one, having passed through some of the openings of the cloth cover.

The figs under the tented tree came to maturity first, on account of the higher temperature developed, and on examining the figs taken from this tree I could find but very few female insects. All that remained were the males, and these could be found in large numbers inside of each fig.

On June 29th, six days later than the figs matured under the tented tree, those on the adjoining tree came to maturity, and I picked several of the fruits and took them to the foothill place, but unfortunately found no figs there.

To show the wonderful powers of penetration possessed by these insects: The jar containing the insects had been covered with two thicknesses of cheese cloth, but this did not retard them from forcing their way through, and upon arriving at my destination I found a number of the insects crawling around on the outside of the jar. The following day I picked the remainder of the Capri figs, and hung them, two on each end of a string of raffia, in several of my Capri fig trees in another part of my orchard. These trees at that time had a number of figs, none of which were larger than two peas, and on account of the size of the fruits I had grave doubts as to the capability of the insects to enter them.

On July 19th I made a careful examination of the Capri fig trees in which I had hung the June crop of Capri fruits, and found a number of figs which were of a dark green color and plump and hard when I pressed them between the fingers—an indication that they contained something; the change in the appearance of the fruits in the Capri trees being the same as in the Smyrna figs when artificially pollinated.

On August 12th the first fig matured on one of the Capri trees referred to above, and on examination I found it contained pulp, a few galls (which upon examination were found to be females), and also seeds. This was a great disappointment to me, and, as I wrote Dr. Howard at the time, I was convinced that if the figs then developing on the trees should prove to be like the first one, a new and difficult problem had arisen and I feared the insect would be lost.

Between the 20th and 26th of August ten more Capri figs came to maturity. These were entirely unlike the first one which matured on this tree, having no pulp, and resembled very closely the June crop of

Capri figs, with the exception that the staminate flowers were absent. At this time a new crop of Capri fruits had made its appearance, and the insects entered them.

Just as before, pulpy figs were the first to mature on this the third crop, and from October 15th to November 10th nothing but Capri fruits of this character were to be found.

On the last date named and during the visit of Mr. Walter T. Swingle for the purpose of investigating the workings of the fig insect, thousands of insects were found to be emerging from Capri fruits, and these again were unlike the first figs of this crop—without pulp.

As far as is known none of the writers on this rather intricate subject have described more than three generations of the Blastophaga. California, however, with her salubrious climate, has brought out a new phase in this matter, which up to this writing was unknown, for instead of three generations, there are four.

That the Capri fig will also produce fruits which, although insipid, are edible, is a feature well worth mentioning.

In November, when Mr. Swingle made a careful examination of the Capri trees, many young figs were found, and on closely examining the ostium of many of the figs the gauzy-like wings of the insect could be found adhering to the bracts on the outside—an indication that the insect had forced its way in, although to the naked eye, and even with a powerful magnifying glass, there was apparently no opening for it to enter.

To protect the figs remaining on a few of the trees, and which will not grow any more now, I have built a cloth house, 28 feet wide by 75 feet long and 16 feet high, inclosed in which are three trees, having fully one thousand fruits, which I hope to carry through the winter.

Unfortunately the tree in the foothills which had fruited so prolificly in the past failed to form any winter figs, and it is for this reason that such elaborate preparations were necessary to care for the fruits on the plains. Hundreds of the fruits are still to be found on the outside trees, and if the fruits carry through without any injury, it will give ample opportunity to determine how much frost the Capri figs will stand.

The future of the Smyrna fig business hinges on the successful carrying through of the figs this winter.

Only a limited number of the Smyrna figs developed as a result of the flowers being pollinated by the insect, and these grew on Smyrna fig trees growing within seventy-five feet of the covered tree and the one close to it.

The important point held in view above all others during that past season was to perpetuate the insect and not to produce figs, and this is the reason that none of the Capri figs were hung in the Smyrna fig trees.

The propagation of the fig wasp takes place in the following manner:

The female wasp forces its way, with the loss of its wings, into the fruit of the Capri fig through the eye, and lays its eggs in the ovaries of the gall flowers. In consequence of this puncture, the wasp embryo develops in the ovaries of the flowers. The wingless or male wasps are the first to appear. They gnaw their way into the ovaries in which the females lie, impregnate them, and then perish within the fig in which they were born. The winged female then escapes and enters the following crop of the Capri fig, when the same process as described above takes place. Or, if the fruits have been hung in the Smyrna fig trees, as is done with the June crop, the wasp forces its way through the eye of this, the edible fig, which is then in the proper state of maturity to admit its entrance, and in its endeavor to lay its eggs, and laden with pollen obtained in its outward passage from the Capri fig, fertilizes the female flowers of the former and then perishes, leaving no offspring; the construction of the female flowers being such that the insect is prevented from depositing its eggs.

All figs fertilized in the manner described mature good, edible fruit, full of perfect seeds; while those which are not pollinated, fail to develop, dry up, and fall from the tree when about one-third grown.

The general impression prevails that the wild, or Capri, fig is really the male fig, while the Smyrna, or edible, fig is the female. While the two varieties of figs do ostensibly stand in the relation of male and female to each other, it must not be inferred from this that the wild fig produces nothing but male flowers, for it contains male, gall, and female flowers, the number varying in a more or less degree in the different crops of Capri figs. It is only in the June crop, however, that the male or staminate flowers are to be found to any extent, and it is this crop that plays such an important part in the successful production of the Smyrna fig, the flowers of which are all pistillate or female.

The fruit known as a fig is really a hollow inflorescence, the flowers being grouped around a common receptacle.

I have shown by my experiments that it is not necessary to have several varieties of Capri figs in order that the insect may breed, but that one tree is sufficient for all the generations of the insect, providing it will produce a succession of crops in the future as it has done in the season past.

In my opinion, however, it is important that we should have a number of varieties of Capri figs planted in different parts of the State, so that if one variety or even a number of varieties fail to produce fruits in one locality, the insects could be obtained elsewhere when needed.

The conclusions arrived at from the experiments made thus far are, that the Smyrna fig cannot be successfully grown unless through the agency of the Capri fig and the Blastophaga, and my orchard of sixty acres of this variety from eight to twelve years old is, I think, a living example of this statement.

REPORT OF THE COMMITTEE ON THE PRESIDENT'S ADDRESS.

JUDGE J. R. LEWIS, W. P. CRAGIN, and H. P. STABLER, the committee to which was referred the annual address of President Cooper, submitted the following report :

SAN JOSÉ, December 15, 1899.

To the President and Members of the State Fruit-Growers' Convention :

GENTLEMEN: Your committee, to whom was referred the President's address, have had the same under consideration and beg leave to submit their report.

So much of the address as relates to the question of fruit distribution is of vital interest to the growers throughout the State, and merits the most careful consideration of the convention. Matters have, since the address was read, been incidentally discussed before the convention, and we recommend that so much of the address as relates to that subject be referred to the standing committee on marketing.

The question as to insect pests and investigation touching predacious insects and parasites, so ably discussed in the address, is one of great interest to the fruit-growers of the State, and should receive earnest consideration and intelligent action on the part of this convention. The work of the State Board of Horticulture in the suppression of insect pests is especially commended to the attention of California fruit-growers. Producers of no other State in the Union, or of no other country in the world, have made the progress in the destruction of these pests that the State of California has made.

The appropriations suggested on the part of our State Legislature should be urged, not only by this convention, but by all local societies organized in behalf of the fruit-growers throughout the State.

Regarding food adulteration, we would recommend that this question, than which there can be none more important, be referred to the Legislative Committee to devise a plan so that the influence of the fruit-growers of this State may be wisely directed and made effective.

Your committee desires to emphasize the importance of the President's recommendation that Congress be urged to adopt prompt measures looking to the preservation of our forests and the protection of our watersheds.

The committee heartily concur in the closing recommendation as suggested by the President, and, in conformity therewith, offer the following resolution:

"Resolved, That our members in Congress be requested to present an Act, and labor for its adoption, setting aside from settlement for homes all mountain lands unoccupied in the State of California, and restrict the devastation caused by prospecting for minerals and mining purposes."

PROF. CHILDS. I move that the report be received and the recommendations adopted.

Motion carried unanimously.

DISCUSSION ON IRRIGATION.

MR. BERWICK. Dr. Woodbridge spoke of the leaching of soils by the use of a few inches of water. This is an important question for us to know. I would like to have the subject discussed further.

PROFESSOR WOODBRIDGE. There are so many here with practical experience that you had better ask some one from an irrigation district.

B. E. HUTCHINGS, of FRESNO. In regard to the leaching of the land by irrigation: If that was a fact all of the country where I come from

would be entirely worthless by this time. We irrigate very heavily and we have not had any trouble so far as that is concerned. I think that some of the largest crops that were ever raised were raised this year and others upon land that was not only irrigated, but flooded every year for the last sixteen or seventeen years, and several times a year at that. Water is rising rapidly, though, on account of the irrigation, and is getting too near the roots of our trees and vines in many places. We have got to put in tiles in those places. I will say that it is a very small portion of the country that is irrigated in that way.

DR. SHERMAN. In the district north of Merced there has been considerable complaint on account of land growing poorer every year on account of irrigation. It is a sandy soil, and the richer portion of the sand seems to percolate totally, and the land seems to be becoming poorer and poorer every year. Even though it has been fertilized, they claim that it continues to decrease in usefulness. The land I speak of is used mainly for sweet potatoes.

MR. BERWICK. Are the sweet potato crops continuous with no rotation? If so, wouldn't that account for the pooriness of the land.

DR. SHERMAN. They raise sweet potatoes only.

PEACH-BORERS.

DR. SHERMAN. I would like to know if there has been anything said about the peach-borer—about the treatment of it, and whether it is proper to leave the holes open during the winter season or to cover them up again after being exposed in digging after the borer?

E. M. EHRHORN. This county (Santa Clara) has had a great deal of varying experience with the peach-borer. We have tried all kinds of preventives, and the only remedy which has ever been tried with promise of success is the carbon bisulphide. However, there is a difference of opinion in regard to it, as some damage has been done, and also some success has been attained. The damage has been invariably found to be where the liquid has been placed on the bark of the tree and on the roots. Where the liquid has not been applied directly to the bark success has been attained, although at times it has been a failure. The failures we cannot account for; my opinion is that it is owing to the liquid itself. We find in some liquids that the carbon will not kill the insect, and in others that it will. We also find that where the carbon has failed to kill the insect, a can of the same stuff purchased by another party will kill it. I believe there is a difference in the strength of it. If we ever get hold of another can where it fails to kill the peach-borer, we will have it analyzed and find where the trouble lies. I believe the carbon should be applied when the soil is sufficiently moist to crumble in your hand. If it is too wet the carbon will perco-

late through it and go to the tree. The soil should be loosened around the tree so that the fumes can get to the insect. If the soil is packed, it takes quite awhile for the fumes to go to the insect, and the strength of it is lost. I have seen trees where the soil has been removed in the wet season and the water would gather around those trees. If the weather is hot, it is not good to have the sun beating on the water and scorching the bark. My advice is not to remove the soil from the tree for any length of time. I have been asked several times about whitewashing the trunks of the trees, putting on a thick coat. It is useless, so far as I know, to put whitewash on the trees at this time of the year, especially where you have to take the borer out with your knife. My study of the insect has been this: I have found the moth flying from the first of April to the end of October, illustrating to us that during the whole period we have had quite a continuous brood. We all know from experience that we find in the same tree different sizes of larvæ, from a quarter to a half, and even one inch in length, as long as the brood lasts—between the first of April and the end of October. By digging out the borer at this time of the year, you need not have any fear of the reappearance of the borer until after the first of April. The moths of those borers which are still in the trees at this time, will appear in April and fly about and lay their eggs on the trunks of the trees, and these eggs will hatch a new brood the next year. One can apply the preventive in April or the latter part of March when the heavy storms are over. Closely watch the substance, especially if it is a substance that will check. We all know that the trees are continually growing, and although to the eye the substance that you have put on the tree does not check, if you will take a magnifying glass you will notice minute cracks all through the line and the worm will enter through those cracks.

QUESTION. In leaving the roots open would the tree be affected by the frost?

MR. EHRHORN. Well of course that would be hard to say. I think it would be injurious with a heavy frost. I do not think leaving the roots uncovered is a good plan, especially if you are going to have a wet season; there is no object in it. If you have the borers dug out you need not fear the entrance of new ones until April comes.

THE VINE-HOPPER.

MR. HUTCHINS, OF MARYSVILLE. I would like to hear something about the vine-hopper. I have heard that Mr. Gordon has discovered a remedy which prevents them from destroying his grapes.

MR. GORDON. Mr. Chairman, Ladies, and Gentlemen: I did not expect to have to pop up here and talk about the vine-hopper. How-

ever, as my name is called, I will say a few words. The vine-hopper, or leaf-hopper, or whatever the proper name may be, is a serious menace to the vineyardists of Fresno County, and it is a question in my mind if they don't destroy, completely, some of the crops in years to come. I talked with my friend Mr. Hutchins about the vine-hopper and the experiments I made last year, also concerning other experiments made by some of the professors at the University, and if I should seem to criticise our State University I am drawn into it by my friend Mr. Hutchins. I said to Mr. Hutchins that Professor Woodworth and several others came up and had done the best they could to suggest some plan to rid ourselves of the vine-hopper; and I said that, so far as the experience of myself and my neighbors went, the plans were all failures. Last season the vine-hopper attacked a portion of my vineyard, and so seriously during the month of June that I got very much alarmed, for the reason that two years before they had destroyed a \$5,000 crop for me, and naturally enough I became excited when they attacked me again last spring. I went and purchased twenty tons of growing alfalfa, and had it mown down and raked up and hauled into the vineyard. The alfalfa was not quite in bloom. I went to town and employed a lot of men to put the twenty tons on thirty-nine acres of vineyard—perhaps forty acres. As a result of placing that alfalfa over the vines, I gathered from my forty acres fifty-nine and three-fourths tons of grapes, and I figure that this saved me in the neighborhood of \$1,500.

QUESTION. Do the vine-hoppers stay with you all summer?

MR. GORDON. Before the summer was over I lost some grapes from them.

QUESTION. Did the vine-hopper desert the vineyard where the alfalfa was spread?

MR. GORDON. I think they did; some of them were there all summer, but they were not near so thick as where there was no alfalfa. You should not put the alfalfa on so thick that the sun and air cannot get to the vines. For twenty thousand vines I would use twenty tons of alfalfa. A laborer can cover about seven hundred vines per day.

QUESTION. What happened to the vines afterward?

MR. GORDON. They came up growing and putting on new leaves. Two days before I picked my crop I had two men go ahead and lift the alfalfa from the vines.

QUESTION. What did you do with the alfalfa?

MR. GORDON. I plowed it in every alternate row and let it stay there.

PROF. WOODWORTH. I should think that was very dangerous, as the nitrogen in that alfalfa in proportion to the other plant-foods might prove disastrous next year?

MR. GORDON. I will take my chances and plow it in.

RESOLUTIONS OF THANKS.

The Committee on Resolutions presented the following resolutions:

WHEREAS, The San José Citizens' Committee of Arrangements has most courteously and generously entertained the convention; therefore, be it

Resolved, That the members of the convention hereby most sincerely thank the Citizens' Committee for the courtesies received, and give assurance that the pleasures of our stay in San José will not soon be forgotten. We particularly desire to express our gratification to the Santa Clara County Fruit Exchange for the privilege of inspecting their magnificently appointed establishment.

Resolved, That the members of the California Fruit-Growers' Convention in assembly recognize and appreciate the courtesies of the Southern Pacific Railroad Company, which kindly granted the convention special rates to San José, thereby materially aiding membership and interest in the convention; and be it further

Resolved, That we thank the Southern Pacific Railroad Company for the kindness of a special train to Stanford University. We also thank Mr. Thomas A. Graham, District Freight and Passenger Agent at San José, at whose friendly solicitation the train was secured, and for his many other courtesies to the visiting delegates.

Resolved, That the thanks of this convention are especially tendered to the press of San José and San Francisco for full and fair reports of the proceedings of this body, thereby aiding and encouraging the fruit industry of the State.

Adopted by unanimous vote.

JUDGE LEWIS. We are about to depart for our homes. The people of San José are proud to know that such a splendid convention has been held in their city. I was not present when you fixed the place for the next meeting, but understand that it is to be held in Marysville; but wherever it is, we of Santa Clara County wish to say, in the language of Root, "Entreat us not to leave thee or cease from following after thee; for wherever thou goest, we will go; thy God shall be our God, and we shall be one."

PRESIDENT COOPER. For myself and on the part of the State Board of Horticulture, I feel very much gratified at the attendance, as also at the universal good feeling among all these who have assembled here.

Adjourned *sine die*.

(NOTE.—Owing to the closing of the State Printing Office during the two preceding years, the proceedings of the 20th, 21st, 22d, and 23d State Fruit-Growers' Conventions were not printed and are therefore not available.)

APPENDIX.

CALIFORNIA CURED FRUIT ASSOCIATION.

In response to a call issued by the committee of twenty-one appointed by the State Fruit-Growers' Convention for said purpose, there assembled at San José, on January 15th, 1900, a convention of fruit-growers from throughout the State, having in view the formation of an association through which they may dispose of their fruit at more profitable prices. The attendance considerably exceeded the thousand limit. It was representative both in the horticultural character and standing of the delegates and in the geographical breadth of the area represented—north and south, coast and interior, valley and foothill, all were largely represented. The spirit of the assembly also was most gratifying. The confidence that the organization in view was possible, and that the right course toward it was chosen, gave point and strength to the whole procedure. The convention chose what seems to be the safest and most direct route toward success. It builded directly upon the broadest and most unequivocal success which California coöperative efforts have yet achieved, and that is, the work of the Raisin-Grower's Association.

The following are the Articles of Incorporation, Directors chosen, and By-Laws adopted:

ARTICLES OF INCORPORATION.

KNOW ALL MEN BY THESE PRESENTS: That we, the undersigned, being citizens and residents of the State of California, have this day voluntarily associated ourselves together for the purpose of forming an association under and by virtue of the laws of the State of California, and particularly in pursuance of the provisions of an act entitled "An Act to provide for incorporation, operation, and management of Coöperative Associations," approved March 27, 1895; and in that behalf we do hereby certify:

I. That the name of the association is THE CALIFORNIA CURED FRUIT ASSOCIATION.

II. That the purposes for which said association is formed are, to buy, pack, handle, sell, market, and otherwise dispose of cured decidu-

ous fruits and nuts, and to act as the agent and factor in the handling and disposition of the same for individuals, corporations, associations, and co-partnerships in every manner; to buy, rent, build, purchase, sell, lease, and operate packing-houses, warehouses, and other buildings, and to lease, purchase, and own the lands upon which such buildings are situated; to borrow money and give any and all evidences of debt therefor, and any and all kinds of security therefor to the same purpose and extent as a natural person; to establish and maintain a uniform and correct system of grading fruits and nuts, and in general to do, perform, and take any and all steps and proceedings necessary and proper to fully carry out each and all the provisions of this article according to their true meaning and intent, and to the same purpose and extent as a natural person.

III. That the place where the principal business of said association is to be transacted is the City of San José, County of Santa Clara, State of California.

IV. That the term for which said association is to exist is fifty (50) years from and after the date of its incorporation.

V. That the number of its Directors shall be nine, and that names and residences of those selected for the first year are as follows, to wit: H. G. Bond, Santa Clara; L. F. Graham, San José; J. H. Henry, San José; F. N. Woods, Westside; A. B. Fletcher, Campbell; H. W. Meek, San Lorenzo; M. Theo. Kearney, Fresno; J. B. DeJarnett, Colusa; Charles Forman, Los Angeles; Thos. Jacobs, Visalia; W. E. Woolsey, Fulton.

VI. That the amount which each member of said association is to pay upon admission, as membership fee, is the sum of five dollars (\$5.00), and that each member signing these articles of association has actually paid in such sum of money, to wit: five dollars (\$5.00), and that the interest and rights of each member therein is to be at all times equal.

IN WITNESS WHEREOF we have hereunto set our hands and seals this — day of —, 1900.

BY-LAWS.

The name of the association shall be THE CALIFORNIA CURED FRUIT ASSOCIATION.

ARTICLE I. **Corporate Powers.**—The corporate powers of this Association shall be vested in a board of eleven directors, who shall be members of the Association, holding one certificate of membership on the

books of the Association; and six Directors shall constitute a quorum for the transaction of business.

ARTICLE II. Election of Directors.—The Directors shall be elected by ballot at the annual meeting of the stockholders, to serve for one year and until their successors are elected. Their term of office shall begin immediately after election. If any Director should cease at any time, in pursuance of the provisions of these by-laws, to be a member of the Association, the Directors remaining may, by resolution, declare the position of such Director vacant, and thereupon and upon such resolution being adopted, the position of such Director shall become at once vacant, to be filled in accordance with these by-laws.

ARTICLE III. Vacancies.—Vacancies in the Board of Directors shall be filled at any meeting of the Board by the other Directors in office, and such Directors so appointed shall hold office until the next meeting of the members, and until their successors are elected by the members. In the event, at any time, the members should be dissatisfied with any of the Directors serving, the President of the Association shall, upon petition signed by not less than one hundred members of the Association, call a special meeting of the members of the Association for the purpose of determining whether the position of such Director, or Directors, shall be declared vacant, and for the election of another Director, or Directors, in lieu thereof, which special meeting shall be called in pursuance of the provisions of these by-laws; and at any such meeting so held, a majority of the members of the Association shall elect to declare the position of any Director vacant, and shall thereupon elect a Director or Directors to fill any such vacancy.

The President and First Vice-President shall hold office until their successors are elected.

ARTICLE IV. Powers of Directors.—The Directors shall have power—

1. To call special meetings of the members whenever they deem it necessary, and they shall call a meeting at any time upon the written request of not less than one hundred members of the Association.

2. To appoint and remove at pleasure all officers, except the President and First Vice-President, agents and employes of the Association, prescribe their duties, fix their compensation, and may require from them security for faithful service.

3. To conduct, manage, and control the affairs and the business of the Association, and to make rules and regulations not inconsistent with the laws of the State of California, or the by-laws of the Association, for the guidance of the officers and management of the affairs of the Association.

4. In addition to the liability of the Association as agents and factors, the Board of Directors has power to contract an indebtedness in any sum not exceeding two hundred thousand dollars in the aggregate, and for the purposes of the Association may borrow money not in excess of said sum of two hundred thousand dollars, and may issue any and all notes and bills and other evidences of indebtedness therefor, and may hypothecate and mortgage any of the property of the Association as security for the sums so borrowed. The amounts of such indebtedness, the terms and purposes thereof, shall be entered in the minutes of the proceedings of the Board, and the note or obligation of the Association evidencing the same, and all contracts and security given therefor, shall be signed by the President and Secretary, and as such shall be binding upon the Association; and any and all indebtedness in excess of two hundred thousand dollars shall be absolutely void as against the Association.

ARTICLE V. Duties of Directors.—It shall be the duty of the Directors:

1. To cause to be kept a complete record of all their minutes and acts, and of the proceedings of the members, and present a full statement at the regular annual meeting of the members, showing in detail the assets and liabilities of the Association, and generally, the condition of affairs. A like statement, less in detail, shall be presented at any other meeting of the members on demand of at least one third ($\frac{1}{3}$) of the members of the Association.

2. To supervise all officers, agents, and employés and see that their duties are properly performed; to cause to be issued to the members, certificates of membership to each member of the Association, the rights and interests of all members to be equal, and no member can ever acquire any greater interest in the Association than any other member has.

ARTICLE VI. Officers.—All officers shall be elected by the Board of Directors, except the President and First Vice-President, who shall be elected by the members as herein provided. The Second Vice-President shall be elected from the Board of Directors. The compensation of the Directors shall be fixed by the members of the Association, and of all other officers and employés, except the Executive Committee, shall be fixed and determined by the Board of Directors.

ARTICLE VII. The Board of Directors shall, at their first regular meeting, elect one of their number to act as Second Vice-President, who, if the President and First Vice-President shall be unable for any reason to act, shall take the place of the First Vice-President and perform his duties, and if at any time the President and both Vice-Presidents shall be unable to act for any reason, the Directors shall appoint some other

member of the Board to do so, in whom shall be vested for the time being the duties and functions of the office of President. The President, the First Vice-President, the Second Vice-President, or in their absence the Director appointed as above provided:

1. Shall preside over all meetings of the members and Directors.

2. He shall sign, as President, all certificates of membership and all contracts and other instruments in writing which have been first approved by the Board of Directors, and he shall draw checks upon the Treasurer.

3. He shall call the Directors together whenever he deems it necessary, and he shall have, subject to the control of the Directors, direction of the affairs of the Association, and generally shall discharge such other duties as may be required of him by the by-laws of the Association.

The President, or two of the Directors, may call special meetings of the Directors at any time, and notice thereof shall be given by serving a written or telegraphic or telephonic notice thereof upon each of the Directors; or if personal notice cannot be given to any of the Directors, as above provided, then by leaving a written notice of said meeting at the last known place of business or residence of each Director, or by mailing the same to the last known place of business or residence of each Director at least twenty-four (24) hours before the time of meeting. The notice in either case shall be complete on the mailing of the notice in the United States postoffice at San José, postage prepaid; or, if by telegraph or telephone, upon the delivery of the telegram or telephone message to the telegraph or telephone company at San José. The Secretary, or other person serving the notice, may adopt any of said modes of service in his judgment most likely to give notice to the Director so to be served. The fact of the service of said notice shall be entered upon the minutes of the Association, and said minutes upon being read and approved, at a subsequent meeting of the Board, shall be conclusive upon the question of service.

ARTICLE VIII. Secretary.—The Board of Directors shall elect a Secretary from either their own members, or a person not connected with the Association, at their pleasure, whose duties shall be as follows:

1. To keep a record of the proceedings of all meetings of the Board of Directors, and of the members.

2. He shall keep the corporate seal of the Association, and the books of blank certificates of membership, fill and countersign all certificates issued, and make the corresponding entries in the margin of such books on such issuance, and he shall affix said corporate seal to all papers requiring a seal.

3. He shall keep a proper transfer book and a membership ledger, in debit and credit form, showing the number of certificates of membership issued, and the date of such issuance.

4. He shall keep proper books of account of the Association, counter-sign all checks upon the Treasurer, and discharge such other duties as pertain to his office, and as are prescribed by the Board of Directors.

5. He shall serve all notices required either by law or by the by-laws of this Association, and in case of his absence, inability or refusal to do so, then such notices may be served by any person whom the President or either of the Vice-Presidents of the Association may designate for that purpose.

ARTICLE IX. Treasurer.—The Treasurer shall receive and keep all funds of the Association, and pay them out only on check of the President, countersigned by the Secretary.

ARTICLE X. Books and Papers.—The books and such papers as may be placed on file by vote of the members or the Directors, shall at all times in business hours be subject to the inspection of the Directors and members.

ARTICLE XI. Certificates of Membership.—Certificates of membership shall be of such form and device as the Directors may designate. Each certificate shall be signed by the President, and countersigned by the Secretary, and express on its face the number, date of issuance, and the person to whom it is issued. The certificate book shall contain a margin on which shall be entered the number, date, and name of the person expressed in the corresponding certificate. No member shall hold, under any circumstances, more than one certificate of membership.

ARTICLE XII. No certificate of membership can be assigned so that the transferee thereof can by such transfer become a member of the Association, except by the resolution of the Board of Directors of the Association accepting such transfer; but by the consent of the Board of Directors by a resolution duly adopted any certificate of membership may be transferred, so that the transferee may become a member in lieu of such former holder thereof. No certificate shall be accepted by the Secretary and canceled before a new certificate of membership is issued in lieu thereof and a resolution of the Board consenting to such transfer duly adopted and passed; but upon such transfer being made, and the consent of the Directors being obtained, the Secretary shall, upon request of the transferee, cancel the old certificate and issue a new one in lieu thereof, and shall preserve the certificate so canceled as a voucher. If, however, a certificate shall be lost or destroyed, the Board of Directors may order a new certificate issued upon such guarantee by the parties claiming the same, as they may deem satisfactory.

ARTICLE XIII. Meetings.—The first annual meeting of the members after organization shall be held in the City of San José on the first

Wednesday in June, 1901, and annually thereafter, at the hour of 10 A. M. of said day, at some hall or other place of meeting to be designated by a resolution of the Board of Directors and stated in the notice calling the meeting, and shall be called by a notice printed in one or more newspapers printed and published in the City of San José, as the Board of Directors may direct, for at least ten (10) days next preceding the day of meeting, or by a notice in writing by the President mailed to each member personally, by inclosing the same in a secure envelope, postage thereon prepaid, and addressed to the last known residence of each member, and deposited in the postoffice at San José, at least ten (10) days next preceding the day of meeting. Special meetings of the members may be called in like manner, after ten (10) days' notice thereof given in either of the modes aforesaid. No meeting of the members shall be competent to transact business unless a majority of the entire membership is represented either in person or by ballot, except to adjourn from day to day, or until such time as may be deemed proper. At such annual meeting of the members Directors for the ensuing year shall be elected by ballot, as hereinbefore provided, to serve for one year, and until their successors are elected. If, however, for want of a quorum or other cause, a members' meeting shall not be held on the day above named, or should the members fail to complete their election, or such other business as may be presented for their consideration, those present may adjourn from day to day until the same shall be accomplished. At every election held in pursuance of the by-laws, each member shall be entitled to cast but one (1) vote, and such voting shall not be in any manner cumulative.

Each member may vote in person or by ballot forwarded by mail, and in voting by mail he must inclose his ballot in an envelope duly sealed, which envelope shall be inclosed in another envelope addressed to the Secretary at San José, with a memorandum stating that such inclosed envelope contains the ballot of the party so voting. The Secretary shall thereupon deposit such ballot in the box sealed, and enter in the poll list the name of the voter, and such ballot shall be opened and counted as other ballots.

Regular meetings of the Board of Directors of this Association shall be held in the City of San José quarterly, on the first Wednesday of June, September, December, and March of each year, at the hour of 10 A. M. of said day, and the Directors may also establish from time to time, as may be desired, other days and times for special meetings of the Directors as the necessities of the Association may require; and when entered upon the minutes of said Association shall be considered the regular days for the meetings of the Directors of this Association to the same purpose and extent as if herein specifically stated. The days of the meeting may be changed from time to time by like resolution

duly adopted by the Directors and entered upon their minutes. No notice of the meetings of the Directors, as established by these by-laws or as may be established by the resolution of the Directors, need be given.

ARTICLE XIV. Qualification of Membership.—No person shall be eligible to membership in this Association unless he shall have paid the membership fee of five dollars, and is the owner, or tenant of the owner, of an orchard which produces deciduous fruits or nuts, and as such is the owner, or entitled to the possession of an interest in a growing crop of deciduous fruits or nuts. All persons above the age of eighteen (18) years, regardless of sex, and any and all co-partnerships, associations, and incorporations shall be eligible to membership if otherwise qualified as herein provided. If at any time any person who is a member in good standing shall cease to possess the qualifications necessary to entitle him to become eligible as a member of this Association, the Board of Directors, upon notification thereof, may, by resolution duly adopted, declare such a member no longer a member of the Association, and thereupon he shall cease to be a member; notification of such resolution to be forthwith sent to such member by the Secretary of the Association by notice thereof, inclosed in an envelope, postage prepaid, and addressed to the member's last known residence or place of business, and deposited in the postoffice at San José. The Board of Directors shall have power from time to time, upon application and petition of any such member who shall by resolution have been declared to be no longer a member of this Association, to rescind, change, or modify any such resolution, and reinstate such member.

ARTICLE XV. Appraisal of Interest in Membership.—Upon a resolution being duly passed by the Board of Directors hereof, canceling any membership as hereinbefore provided, any member so expelled, and whose certificate shall have been canceled, shall have the right to have the Board of Directors appraise his interest in the Association in either money, property, or labor, as the Directors shall deem best, and to have the money, property, or labor so awarded him paid, or delivered, or performed, within forty (40) days after expulsion; and the Board of Directors shall, upon application therefor, appraise the expelled member's interest as hereinbefore provided, and shall thereupon pay or deliver to the expelled member the money, property, or labor so awarded to him.

ARTICLE XVI. Bonds.—Bonds shall be required by the Board of Directors of this Association of the Treasurer, and all other officers and employes of this Association, in the discretion of the Board of Directors, in such an amount and containing such provisions as may be deemed best by the Board of Directors. All bonds shall be executed by the

principal, with sufficient sureties, approved by the President of the Association, and shall be thereupon filed where designated by the Directors.

ARTICLE XVII. Compensation of Directors.—Each Director attending any meeting of the Board of Directors shall be entitled, as compensation, to the sum of ten (\$10.00) dollars for each and every meeting so attended, and also his necessary expenses incurred in the attendance of said meeting; *provided, however,* that any Directors receiving a monthly salary from the Association shall not be entitled to the compensation herein provided.

The compensation of the President is hereby fixed at five hundred (\$500.00) dollars per month, and that of the other members of the Executive Committee at three hundred (\$300.00) dollars per month each.

ARTICLE XVIII. Executive Committee.—The Board of Directors shall appoint from their number an Executive Committee, including the President and Vice-President of the Association. The President shall be ex-officio chairman of said committee, for the transaction of such business of the Association as may require attention; but all such business shall be submitted to, and approved by the Board of Directors at their next regular meeting, if required, and this committee shall constitute a standing committee of the Association, a majority of whom may act. Meetings of the committee shall be held from time to time, as the necessities of the Association may require, without any formal notice being given, but sufficient notice shall be given to each member of the committee to be present at the time and place appointed for the meeting, to enable him to attend if he so desires. The Secretary shall attend all such meetings and keep minutes of the proceedings and the business transacted at any such meeting, and the facts of notice having been given as hereby required to each member of the Executive Committee, entered upon such minutes, shall be conclusive evidence of that fact.

ARTICLE XIX. Amendments.—These by-laws may be amended or modified by the vote of a majority of all the members, after notice of the proposed amendment shall be given and a meeting called in accordance with the provisions of Article Thirteen; to the notice of such meeting there shall be attached a copy of the proposed amendment or amendments.

ARTICLE XX. Division of Profits.—Profits of the Association shall be divided among the members thereof at such a time and manner as the Board of Directors may deem best, and whenever such profits shall, in the opinion of the Board of Directors, warrant a division of the same.

ARTICLE XXI. **Corporate Seal.**—The Association shall have a common seal, consisting of a circle, having on its circumference the words: "California Cured Fruit Association, Incorporated January —, 1900."

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