Methods of Packing and Shipping Citrus Fruits

David Scott, Arcadia, Fla.

Mr. President, Ladies and Gentlemen:

In this paper we shall attempt to give a brief outline of the history of the development of methods of packing and shipping citrus fruits in Florida. Other members of our committee will treat the more technical details of the subject.

During the decade from 1870 to 1880 the orange industry of Florida first assumed commercial importance. The fruit was mostly packed by the growers and marketed almost exclusively through the commission houses of the larger cities. As the industry assumed larger proportions buyers purchased much of the fruit on the trees and assumed charge of the picking and packing. They built packing houses usually equipped with nothing but simply constructed sizers. In many cases the fruit was sized by the eye. Much of the fruit was carelessly handled and roughly packed, and in these early days we hear of decay. But during the eighties and early nineties a number of packers built up a reputation for careful grading and neat packing. They built packing houses usually equipped with nothing but simply constructed sizers. In many cases the fruit was sized by the eye. Much of the fruit was carelessly handled and roughly packed, and in these early days we hear of decay. But during the eighties and early nineties a number of packers built up a reputation for careful grading and neat packing. Much of the early popularity of the Florida orange as well as the introduction of grapefruit was due to the efforts of the local buyers and packers of this period.

When in 1893-4 the crop of the state had reached about 6,000,000 boxes the problem of distribution called for the best energies of all factors in the business. But during the winter following, this problem was solved for a time by the "big freeze." There was little change in methods of packing or marketing agencies during the ten years following. A few packers adopted the California "Pony" box. But this did not meet with favor among the best packers. By 1905-6 the crop had increased to about 3,000,000 boxes. A number of good packs were well established, more than holding their own with the best brands from other orange-producing regions. But at certain seasons during damp weather heavy decay developed in transit. During 1907 the U. S. Government began extensive experiments in Florida to ascertain the causes of decay. This work was ably and thoroughly conducted over a period of about six years by such men as Lloyd S. Tenny, G. W. Hosford, A. V. Stubenrauch, A. W. McKay, H. J. Ramsey and others. If our people will properly follow up the work of these men Florida can easily save millions in a few years. Every grower or packer of citrus fruits would profit by a careful study of the results of these investigations as published in Bulletin No. 63 of the U. S. Department of Agriculture.

In 1909 the Florida crop had again reached and passed 6,000,000 boxes. The spread of whitefly rendered washing the
fruit necessary in some localities. With proper equipment washing and polishing is an easy process, and has become the rule in the best packing houses of the state. The best trade demand washed fruit.

With the introduction of more complicated packing house machinery, which has come largely from California, there has come also an inclination to copy the California package. Let us hope that while we are ever ready to adopt every new idea that is good we may still retain enough of the good old fashioned Florida package that our fruit may be recognized as distinctly Florida's own—the best fruit in the world.

J. C. Chase, Jacksonville, Fla.

Mr. President, Ladies and Gentlemen:

Mr. David H. Scott commissioned me to prepare a paper upon the methods of packing and shipping citrus fruits—handling the shipping end. This gives me the opportunity of submitting the results of investigations carried on this season in shipping and distributing grapefruit in carloads under a freight system that is more or less of a "lemon."

When we talk of furnishing grapefruit to the unsupplied who have not acquired the grapefruit habit, few realize the expense per grapefruit in freight alone in getting it to the market. No fruit is grown or shipped where freight charges per unit or individual fruit are a greater factor than Florida grapefruit.

A careful check of over four hundred (400) carloads of grapefruit distributed amongst ninety-six (96) cities in the United States and Canada located in thirty-five (35) states exclusive of Canada, showed average freight charges from loading points to destination of 86.35 cents per box. Representative carloads from different districts average fifty-six (56) grapefruit per box per carload. On this basis, which is a fair one, the freight cost alone averaged slightly in excess of one and a half cents (1½c) per grapefruit per carload. Freight expense per grapefruit per box of each size standard pack as follows:

28—038; 36—023; 46—019; 54—016; 64—014; 80—011.

Florida perishable products to supply the markets of the country move through certain gateways, and freight charges are regulated to the markets based upon these gateways. To understand how the population of the country is distributed the states can be divided into groups as follows:

FLORIDA GATEWAYS.


This group, which comprises the Southern States, is not a large user of grapefruit, owing to the preponderance of the black population, and perhaps never will be; yet the freight charges per box are less into this territory than into any other section of the country.

POTOMAC YARDS.

Group 2. Population 33,163,986. All states north of the Potomac River. Con

This group contains the largest consuming markets and the most densely populated territory on the American Continent. The population of the State of Pennsylvania alone exceeds by over a million the combined population of all the New England States. The all-rail grapefruit freight rates into the principal markets of this territory (taking 20c a box as the average freight charge from the average grapefruit-producing district to base point) varies from 64c a box to Philadelphia to 71c to Boston, 72c to Pittsburg and 73c to Buffalo, to 90c to Montreal, averaging per grapefruit from one cent (1c) to over one and a half cents (1½c).

CINCINNATI.


Freight charges on grapefruit per box in carload lots run from 66c in markets along the river to 86c in the markets north of Chicago and Cleveland, making a slightly higher general average per grapefruit than in Group 1.

MISSOURI AND MISSISSIPPI RIVER.

Group 4. Population 9,316,284. West of the Mississippi and south of the Missouri, including Arizona, Arkansas, Louisiana, New Mexico, Oklahoma and Texas.

Grapefruit freight rates into this territory, with the exception of New Orleans (which has a rate of 50c) vary from 82.8c to Galveston to 91.2c per box to all Texas and Oklahoma common points. The average per grapefruit per carload ranges from 1.48c to over 1.6c.

ALL OHIO AND MISSISSIPPI RIVER GATEWAYS.


The freight charges on Grapefruit into this territory vary from 70c to 75c a box at points on the Mississippi River to $1.60 per box to the markets located in the States of Utah, (1.60), Idaho (1.60), Oregon (1.50), Washington (1.50) and with charges running $1.16 to Winnipeg and Saskatoon. The freight charges per grapefruit will range from 1½c St. Louis to 2.85c per grapefruit where the freight charges are in the neighborhood of $1.60 per box.

Under Florida's existing rate scheme there is no such thing as making a uniform price in all markets on her products unless the growers equalize the cost laid down out of their own pockets. Unless the Florida initial lines and connections can be induced to put into effect a system of rates similar to those enjoyed by the California citrus growers, Florida products can only enter the markets of the northwest with a very heavy handicap in the way of freight charges. The rate on California oranges is $1.15 per hundred
pounds or 82.8c per box to all markets of the country east of Colorado with the exception of a few markets in the southeastern territory. The rate on a box of oranges from California producing points to Chicago is 82.9c per box. The freight charge is the same to Pittsburgh, Philadelphia, New York, Boston and all intermediate markets. According to the writer’s understanding the division of this freight rate of $1.15 per hundred or 82.8c per box on business moving east of Chicago is on a basis of 75 per cent to the road or roads bringing it to Chicago and 25 per cent to the roads delivering it to markets in the eastern territory. The mileage via Santa Fe from Los Angeles to Chicago is 2,242 miles, and for this haul, on business moving east of Chicago, the railroads earn 62.1c per box. The distance from Chicago to New York is 973 miles, and to Boston is 1,032 miles, for which the railroads earn 20.7c per box. We do not know of any such low freight rates either per hundred or per box applying on Florida grapefruit.

We cannot reasonably expect the railroads to handle Florida grapefruit from the east into the west on any more favorable terms than California oranges and grapefruit are handled from the west into the east. The writer can see no reason why the transportation companies cannot move Florida grapefruit in carload lots to points along the Mississippi River on basis of rates similar to those now in effect, and in event Florida grapefruit and other products are moved into the territory beyond the Mississippi River have it transported on a blanket rate applying from point of production.

It is stated on good authority that there are thirty-six thousand (36,000) acres in Florida planted to grapefruit, with trees from one (1) to five (5) years old. This acreage is in addition to the acreage now in bearing. It is estimated in five (5) years, under favorable conditions, the crop of Florida grapefruit will aggregate fourteen million (14,000,000) boxes, equivalent to forty thousand (40,000) carloads of 350 boxes each.

The question confronting the Florida grapefruit growers is a market for this crop at a price that will not only pay the cost of production, but will allow a margin of profit. The cost of producing averages fifty cents (50c) per box, or nearly one cent (1c) per grapefruit. The average expense of picking, hauling, packing, loading and selling in carload lots is not less than seventy cents (70c) a box, or 1½c per grapefruit. We have shown that the average freight charges on four hundred (400) carloads to ninety-six (96) markets averaged 86.35c per box or slightly in excess of 1½c per grapefruit. These items of cultural cost, picking, packing and carlot selling total approximately 3½c per grapefruit per carload when the fruit averages 56 to the box. If you take one grapefruit as equivalent to two oranges, and if we take a price of 25c a dozen on oranges (which figures insure a free consumptive demand) on an equal basis it would mean 50c a dozen for grapefruit. Grapefruit would have to be retailed at this price in order to insure a consumptive demand to take care of the present crop, yet this price only leaves five cents (5c) a dozen between the cost of the fruit laid down in the mar-
kets (45c a dozen) and the retail selling price of the same (50c a dozen), and this five cents under this scheme must take care of profit to the producer, and a margin of profit for the jobber and retailer. The writer ventures the opinion that the Florida grapefruit growers have lost one million dollars in producing the crop that is not yet fully marketed; that is the results will be one million dollars less than it cost to produce the crop.

Some of the difficult obstacles encountered during the past season have been:

First. The excessive crop of apples, grapes and other fruits. The crop of apples is now said to have been seventy million (70,000,000) barrels, by far the largest on record and more than double that of the previous year. All fruits, and especially apples, have sold at exceedingly low prices throughout the season and have interfered greatly with the consumption of grapefruit.

Second. Unusual depression, adverse industrial conditions and a very unusual percentage of unemployed. Employment gives ability to purchase, and in many factory and industrial centers dealers have refused to handle grapefruit and other luxuries. They had to carry their customers through the winter on credit and therefore kept their accounts down to a minimum by handling only the prime necessities.

Third. The European war greatly reduced our Canadian trade and greatly reduced our southern trade from what it would have been had the South been able to sell cotton at the usual values and at the usual time.

Fourth. When newspapers are constantly agitating the existence of poverty and exaggerating these conditions; every type of people, no matter what their circumstances, become conservative and feel poor, and advertising in the usual manner does not influence them to buy luxuries. From the opening of the season people have felt that the future might bring poverty and have conserved their resources.

The problem confronting the grapefruit growers is a difficult one to solve and cannot be settled in a satisfactory manner unless we are sure of the co-operation and assistance, along substantial lines, of the transportation companies. Grapefruit in rate making is entitled to be taken out of the citrus classification and given a classification of its own. Florida oranges at certain seasons may decay more freely than California oranges, but Florida grapefruit is hardy, ships well and keeps well after it reaches destination.

A retailer can purchase a box of Florida grapefruit and be reasonably sure of making a profit on each one. Florida growers realize the splendid keeping quality of grapefruit, as we see in our groves under some of our trees grapefruit that dropped early in the season from lack of market, and is in just as good condition now as it was several months ago. We can afford to load more boxes of grapefruit into a car than we can oranges, and feel that we are entitled to a freight charge that will enable us to reach the markets of the country and get in touch with the millions of people who have heretofore been unable to buy grapefruit because it was beyond the reach of their pocketbooks.
If you read the address of Mr. William Sproule, President of the Southern Pacific Railway before the Western Fruit Jobbers Convention you will note that he states as follows:

"It is not the fruit that is sold on the great avenues of our great cities which makes a fruit season prosperous. It is the distribution of fruit amongst the tens of thousands in the side streets of our cities and directly from the peddlers' wagons. In other words, the success or failure of a fruit season depends on the ability of the countless thousands to buy the fruit."

Do traffic officials of Florida lines realize conditions confronting the grapefruit industry? Will they come to its aid and keep it from going back? The facts were laid before them by the Florida Growers and Shippers League at the St. Augustine meeting, March 18, 1915.

The grapefruit acreage is here and in condition to produce an enormous and constantly increasing tonnage of highly desirable freight. It is not reasonable for railroad officials to think that grapefruit growers will continue to keep up properties merely for the sake of grinding out revenue for the railroads.

Many of us witnessed and suffered from the destruction of our citrus properties by the freezes of 1894-95, and succeeding cold years. These were acts of Providence and beyond human control. We do not want to again see the citrus territory of Florida disfigured with deserted and neglected grapefruit groves, brought about by the failure of transportation interests to take proper action.

We want our industries to prosper in order to attract to our future development outside capital and a desirable class of settlers. To do this our products must have wider and better distribution, which can largely be brought about by more reasonable freight charges to remote markets.

S. C. Inman, Florence Villa, Fla.

Mr. President, Ladies and Gentlemen:

It is no little honor to be accorded the privilege of addressing so representative and intelligent an audience as is here assembled, and would that I were capable of doing justice to you and the occasion.

The subject assigned me, "Methods of Handling and Packing Citrus Fruit," would probably be more satisfactorily discussed by an experienced packing house manager.

By reference to Reports of Proceedings of previous meetings of this Society, over a period of several years back, we find that this topic has been very exhaustively handled by those far abler, hence I have no new ideas to hand you.

The various bulletins and other literature which have been published from time to time, giving results of scientific research, conducted by government experts, Messrs. Powell, Tenny, Ramsey and others, furnish us abundance of indisputable data, showing that by far the greatest portion of the decay which besets our fruit is the result of mechanical injury, permitting infection by the fungus, commonly known as blue mold.

These same authorities have demonstrated too, that fruit which has not been mechanically injured is not greatly prone to decay, and may be shipped to distant
markets and kept a reasonably long time, under ordinary conditions with practically no loss from this source.

These are lessons of inestimable value to the grower and packer, and if this truth could be indelibly engraved upon the minds of all growers, packers, pickers and others who have the handling of our fruits, the good work which these men have done would not be in vain.

Therefore, if you are expecting to win a favorable reputation for your brands in the market, it goes without saying that you have taken every precaution to protect your fruit from injury through every step of progress from the tree to the loading of the finished package into the car.

As I am not an experienced packing house manager, I shall not dwell at length on working details; leaving these to be worked out in the field and packing house, by those who have it to do, and know how.

All I shall attempt is to briefly outline such methods as may seem conducive to the most satisfactory results.

We are in the midst of an epoch of wonderful development and rapid changes in the citrus fruit business, compelling us to adopt up-to-date methods or submit to being pushed aside by the on-rushing wave of competition and progress.

Our big sister state, and powerful competitor, California, has had us pretty well pushed out of some of our once enjoyed markets, and is clamoring vigorously for the lion’s share, winning by her up-to-date methods of packing and marketing, and by her extensive and persistent advertising, but Florida has seized the aggressor’s weapons and is now winning back some of her lost prestige; compelling our rival to accept a diminishing share of the coveted markets.

There are a few cardinal objects which must be kept clearly in mind in all packing operations. Briefly stated they are expedition, economy, dependability and attractiveness of the finished product. All methods, processes and efforts must lead unerringly to these all important results.

These attainments can be secured in the maximum degree only where thorough system prevails, where the needed equipment is installed and a well organized force kept continuously occupied at normal capacity.

The product should be uniform in quality for the various grades, neat in appearance, and stand as the embodiment of a square deal, from bottom to top, from end to end, from surface to center.

These are the outlines of method, and the underlying principles on which we should undertake the marketing of our fruits and when faithfully lived up to, should give the shipper a well earned reputation in the markets.

I know of no better way of procedure to secure these aims than to follow the plan of operation practiced at packing houses at Florence Villa.

I pray an indulgence by my hearers for thus referring to an institution with which I am personally connected, for I assure you that it is not with the idea that we are doing things any better than some others, for we rejoice that there are several really up-to-date packing houses in the state; some of them not so large, but all putting out fine packs and standing high in the markets, and we hope it will be but a few years when every citrus fruit
community will have its well appointed packing house, under good management. When that day comes, Florida need have no fear of competitors, and she will then have squared herself for the successful marketing of the fifteen to twenty million boxes of fruit which she will soon be producing. In fact today, Florida’s greatest problem is to take care of our own products. A constructive plan of marketing should be engaging the serious consideration of all growers, and no factor is more potential than good packing.

I refer then to Florence Villa, not because we consider ourselves as a worthy model, but simply because we are familiar with workings there.

At this plant there is a competent manager. He is an expert in the fruit line, knows how to manage help to secure loyal co-operation, and is ever watchful that the operatives are placed where each man can accomplish the most good work. All picking and hauling is under his direction, as well as the inside work.

Picking is done by crews as far as practical, each crew working under close supervision of a picking foreman, who also looks after teamsters while in the grove, seeing that loads are promptly secured, trees not damaged by wagons or mules or by the placing of ladders while in hands of pickers. By-the-way we find this an all-round job, and one of the most difficult places to find a man who will fill satisfactorily. No man in the whole line-up of employees has greater opportunity for looking after the grower’s interest than the picking foreman.

Pickers are required to place their numbered ticket on the filled box, and there it remains until inspection has been made for clipper cuts, long stems, etc. Inspection is made at packing house, and we find this an improvement on inspection in the field.

When drivers deliver a load of fruit at packing house a receipt is issued stating what load consisted of, and exact time of arrival. Duplicate of this is sent to the office each evening, and same is checked the following morning. If intervals between loads seem unusually long, explanation is in order. Hauling being done on the day basis.

When fruit arrives at packing house the owner loses his identity, and is known by his number thereafter.

All fruit is washed and dried by the most approved appliances and delivered to the sorting belt perfectly dry.

No part of the work has received more careful consideration than the standardizing of our brands, and the uniformity of our grading. The idea has been to simplify to the fewest number of brands and grades, taking great care not to fix standards higher than could be uniformly and constantly maintained. We fixed upon three brands, representing three grades, which are distinctly designated on the boxes, and into these go all the marketable fruit of the house.

The “swell” or “bulge” pack is used, with metal center strap. Rounded edge boxes, finest quality printed wraps throughout, wraps given close twist, and fruit so placed in box that printing reads right side up when seen from branded end of box.

The average output of this house is from 1,500 to 1,800 boxes per day, the
boxes being nailed together by a nailing machine operated by a boy. This machine has been one of our most satisfactory economies.

The placing of fruit in boxes is done under the watchful eye of a packing foreman and any attempt to “slip bad workmanship over on him” would be a thing of short duration to say the least.

No detail of the work is more carefully performed than the making out of loading manifest, in order that each manifest may be a true exhibit of the various brands and sizes contained in the car. A duplicate manifest is placed in all cars for the convenience and information of receiver at destination.

All cars are skilfully loaded and stayed to insure the best possible delivery.

This completes our preparation of the fruit for the market, experts having directed and watched every step of its progress from tree to the car. We now turn it over to expert salesmen to get the most they can for it.

Dr. O. W. Sadler, Mt. Dora, Fla.

Mr. President, Ladies and Gentlemen:

Regarding many of the points in the packing and shipping of citrus fruits, it is now unnecessary to dwell upon details.

After five years of experimentation by government experts, and enthusiastic practical experience instigated by the Florida Citrus Exchange, there is no longer need of detailed argument that all fruit should be gathered with the gloved hand, and cut by a clipper that insures short stems and no clipper cuts. Each fruit should be removed from the limb to a thick canvas bag, by the hand, the bag not to hold over one-half box. The bag should open at the bottom, so that the fruit may be placed in the box without appreciable dropping.

The size of field boxes still varies in practice—some using those holding one-half box, two to count as one, others a full box, both intended to average a packed box.

The average class of pickers we are compelled to employ, prefer the full sized box. When using any other size, one would think they all “came from Missouri,” as it takes a great deal of “showing” to make them believe they are not picking too much, when using two smaller boxes for one box.

HAULING.

When two men are employed loading in the field, there is one point in favor of the “whole box” standard, there is but half as many chances of bruising the fruit from over filling. And another, that the large box gives a smaller bulk on the wagon than the smaller boxes. The same careful handling to avoid bruising fruit, is necessary in either case.

IN THE PACKING HOUSE.

All “Exchange idea” packing houses are fitted up with machinery for handling the fruit with the least possible injury, and should be carefully watched, that no loose parts, slivers, or projecting nails shall bruise any part of the rind, and that it all be arranged so that fruit can not “drop,” but must “roll” from start to finish.
FLORIDA STATE HORTICULTURAL SOCIETY

WASHING AND DRYING.

It is as yet absolutely necessary to wash fruit to give it the satisfactory appearance to please the trade.

During the early experience in washing, it came to be believed that "washing" greatly increased the decay of fruit. With the careful packing and handling of fruit, and the great improvements in washing machinery, the supposed bad effects of washing have mostly disappeared.

The best outfits for washing, now consist of a soaking tank filled with hot water, containing an alkaline cleansing powder, especially where the fruit is black from sooty mold from the whitefly. Gold Dust or other alkaline powders are now used in the water.

THE PROPER DRYING OF FRUIT.

The next and most important step, is the proper drying of the fruit before it is wrapped and put into the box.

Two methods are employed for drying, involving two diametrically opposed principles—the absorption of moisture on the fruit, by cold air, the other by hot air.

Those using "cold air" seem to be prepossessed by the "precooling idea" as practiced in California, where they go still further, by precooling the fruit in precooled rooms, and load into precooled cars, and the cars iced sufficiently to maintain 37 to 40 degrees.

Those trying to dry by cold air blast in Florida, seem to forget the immense difference in climatic difference in the atmosphere in California, which gives them only eleven to fourteen inches of rainfall, and that of Florida, which gives from 53 to 56 inches of rainfall. They also forget that the California fruit travels to market over a dry, hot desert for over one thousand miles, where dryness is not a question, but where heat becomes their greatest foe, and naturally, and in consonance with the law of physics, suggests cold.

They who try to dry by the cold blast, also utterly forget the natural law of physics—that cold tends to precipitate moisture—that when the "dew point" is reached, water actually deposits on all objects down to the dew point temperature.

Two marked practical demonstrations of this point have come in my experience.

Several years ago, my wife in my absence, had about one hundred boxes of oranges packed on a clear cool day and left in the packing house. During the night the weather changed to a warm, muggy atmosphere. When she went to the packing house in the morning to continue packing, she found the paper and fruit throughout the packed boxes, as wet as though it had been given a Russian steam bath. It was put out in the sun, and dried as well as such could, and shipped to Baltimore. The returns were—"Received in very bad order"—for which $1.00 per box was taken from the market price. This is a strong physical, as well as financial demonstration of precooled fruit attracting moisture in Florida.

Another demonstration was observed the 29th of December last. The previous day and night had been clear, cold and dry. In the morning it warmed up rapidly, and although the day was bright and clear, every casing and piece of woodwork inside the house was covered with
moisture in drops, turning the varnish bluish as you have all noticed under such conditions. The metal safe was so thoroughly wet that it dripped a puddle in the floor, and the paper on the walls was thoroughly wet.

A box of oranges I had packed the night before, and left under cover, I found with the papers as wet as if I had thrown a pail of water into the box.

A still more practical demonstration under up-to-date packing house conditions, I will now give you.

During a cold, damp morning in March, later raining, the Mt. Dora house was packing fruit with the cold air system, the fruit going to the bins glistening with moisture in every pore of the rind. The manager and myself drove over to Tavares, where they were drying by means of hot air, produced by radiation from twelve one-inch pipes, close under the rolls that carried the fruit, extending lengthwise of the 36-feet-long dry box, all encased in a box made of flooring, the pipes being supplied by steam from a 10 H. P. boiler at 40 lbs. pressure. The fruit came through as dry as though it had been in the sun on one of our hottest and dryest days.

It is an axiom—The hotter the air, the more moisture will it absorb. The colder the air, the more moisture will it deposit. Hence the absurdity of trying to absorb moisture from fruit by a blast of air that is already loaded with nearly or quite all the moisture it can hold.

We have tried two years of the cold air blast at the Tavares house, by all the methods known at the time, and gave it up as a failure.

Two years ago we installed a hot water soaking tank, and radiated steam heat by a system of one-inch pipes the full length—36 ft., by 4 ft. wide, close under the rolls, with a small fan at the distal end, drawing the air through the main dry box, and blowing it back through the drip rack box by its side. The drip rack is also enclosed and supplied by a system of pipes that can be used when necessary. It has never proved necessary to turn the steam into the pipes in the drip rack, except on very cold, damp days.

The 10 horse boiler with 40 lbs. of steam, heats the water in the soak tank and maintains 90 to 100 degrees temperature in the drying box. Any desirable heat can be maintained.

The fruit is in the drying box about eight minutes, and emerges thoroughly dry. A thermometer thrust to the center of a 150 size orange, reads 96 degrees Fahrenheit. The water in the soak tank is maintained at 102 to 130 degrees, according to how black and sooty it is. There is no danger from heat of the water, as long as you can barely endure the hand in the water.

The greatest objection to the installation of the hot air drying, was the fear of cooking the fruit. Experience and actual thermometrical tests show how absurd was that fear.

I must call your attention to another point of great value in favor of hot air drying; that is, its aid in preventing decay.

Slight injuries that pass observation, are well dried out.

Blue mold decay, can only take place in the presence of moisture. This has been
fully demonstrated by experiments of the Government experts in actual tests: Therefore; bruises that are thoroughly dried cannot decay from “blue mold,” unless the spores have been forced deep into the rind in the presence of constant moisture.

Ladies and gentlemen, I acknowledge that “Hot Air” is my hobby—to dry oranges in—yes, to live in. I can fully sympathize with the Esquimo, to whom cold is Hell, and heat is Heaven.

The reported opinion of the worthy business manager of the Exchange to the contrary notwithstanding, who advises through the “Grower,” all new packing houses to put in the cold air process.

We of the Lake Region Packing Association, at Tavares, after two seasons of the most absolute satisfaction with hot air, beg to differ and say, don’t!

Our manager, Mr. J. B. Booth, will take great pains and pride in showing any one interested all the details of our system, its advantages, cheapness of installation, cheapness of maintenance, etc., and while in operation its absolutely satisfactory workings. In this matter we have no “axe to grind,” or financial interest in marketing any part of it. We only urge its principles for the benefit of all growers, after extensive demonstration. Come see us and “be shown.”

PACKING

From the frequent returns of inspectors at the marketing end, “slack,” or “flat pack,” it is evident it is no careless job to pack fruit so firm that the box is as full at the market end as when it was first put in. It is evident that it requires the constant application of force to place every orange firmly in its place, and that the sizer shall be so exactly adjusted that the average in each bin shall fill the box firmly.

As I go through packing houses, I see some packers laying their oranges in gently, and when the box is finished, it is piled high, depending on the foot press to push them down so the top can be nailed on. Others place each orange firmly in place, and when their box is done, the press only has to firm the top down to its bulged form, and the middle front is held as firmly as the ends. I then ask myself, how it is possible for the soft pack and the firm pack to give the same desired effect; the answer is, they can’t. My opinion is that the loosely laid in fruit is the cause of the frequent complaint, “flat pack.”

TO TWIST—OR WAD

I believe that a single twist, or sufficient to cause the wrap to stay in place, especially on the top layer, is necessary. Placing all brand printing on wraps in the same direction on top layer gives the most pleasing effect to the pack.

REGARDING THE SIZES TO MAKE

My attention has been called to the sales returns on account of size. Out of a considerable number of sales returns, I have been shown that 216’s often brought 10 to 25 cents per box less than either 200’s or 250’s. I have never heard of a reason for the 216 pack, except that it was an easy pack. If it is true that 216’s average less than 200’s and 250’s, why should we continue to pack that size, when
the large ones of the 216 pack will pack in 200's and the smaller in 250's—and bring more money?

**THE SIZE OF THE BOX**

The size of the box has become practically standardized in that of two sections of one cubic foot each. Does the present marketing customs call for, or admit of a change for the obtaining of a better price?

Our deceased fellow member, Mr. Dudley Adams, of Mt. Dora, used to pack his fancy fruit in three sections, instead of two, as we do tangerines, and had the reputation of securing from one-half to one dollar above the market price of standard boxes. Schrader & Co. are trying out the introduction of half-bushel boxes.

*Our parcel post regulations will undoubtedly afford an outlet for fancy fruit in packages of one to four dozen, within the near zones, and enlarge the mail order business.*

The packing of fruit in central packing houses at some large sales center, or at the more northerly diverting points, has been under consideration by some of our leading thinkers, and now that the new railroad rates on “bulk shipments” tend to make such a method practicable, it is worth investigation.

*A bulk shipment and northern central packing house* would have these advantages: Cheaper freight rates, more and cheaper labor in packing house, absolutely sound fruit to buyers, a larger F. O. B. market, and a better market for culls, and a better opportunity to sell small-lots direct to consumers, or the retail trade, all of which seems to me to be worthy of the most careful consideration.

**Changes in Box to Meet Another New Marketing Feature That Has Developed Within the Last Year or Two.** The organization of consumers' buying clubs throughout the north is in practice, and might be encouraged and assisted by our selling organization of the exchange, and thus get closer in touch with the consumer—the end most desired.

*Direct from Grower to Consumer.*** The express companies are succeeding in this method, why not the growers, through the Florida Citrus Exchange selling force?

After five years of insistent, persistent preaching and teaching of “The Exchange Way” of packing, and the very general practice of associations in securing a perfect pack, let every grower back up every packing house manager in maintaining as perfect a pack as possible. We all know how easy it is to “slack up” from the best both physically and morally. Don’t.

*Can We Lessen the Expense?*** Now that we know how to pick, handle, and pack fruit in a way to secure its sound and presentable delivery to the consumer, can we lessen the expense of so doing?

I naturally expected that by the use of machinery and systematized methods of handling fruit we would be able to do it cheaper as well as better than in the past; but instead, expenses have actually increased.

Now let me ask every grower, and especially every packing house manager, at the end of this season, to go over every detail of the business, and see if it is not possible to cut out a little expense here and a little there, and before the next season opens, call a meeting of packing house
managers in each sub-exchange or district, and all others interested, collaborate all suggestions advanced, and adopt a uniform system of packing, and packing house work, and prices, and so increase the advantages of co-operation. The success of orange raising is going to depend upon the "survival of the fittest."

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**DISTRIBUTION OF FRUIT TO THE CONSUMER**

E. Stuart Hubbard, Arlington, N. Y.

*Mr. President, Ladies and Gentlemen:*

There has been a good deal of agitation in the press lately regarding the final method of distributing fruit to the consumer. There have been a good many claims made that the present manner of distribution is wrong and that it is a great deal more expensive than it should be; that is, the consumer has to pay a great deal more in proportion to what the grower receives, than he should. There have been statements made in the papers which are very misleading, often false, with regard to the prices which the consumer has to pay. For instance, with regard to oranges, in one of our late papers there was a statement made by a California grower that was something like this, as I recall it, that eighteen cars of California oranges had been sold on two successive days in New York market at auction at an average of $1.80 per box, and that those same oranges would cost the consumer an average of something like $4.50 per box; making $2.70 profit to the brokers and retailers. A statement like that is an absolute falsehood.

There is a small proportion of trade in New York or any of the large cities which pays a high price for oranges; this trade is supplied by the best oranges which reach the market. These prices are above the average of the sales. If you will look at your auction sales for any one day, you will find there are a few boxes which sell for much higher prices than the average. There are a few boxes of large sizes, like 126's or 150's of the best brands, which will sometimes sell for $2.00 or $3.00 a box more than the average prices.

The man who usually writes these articles is often an expert who is given the position of investigating, and he goes to the stores where this fine fruit is sold at high prices, buys fruit there, and goes back and writes these figures as his basis.

In the meantime, the great mass of fruit, good average fruit, is bought by the middle classes and the lower classes at very much cheaper prices.

I am primarily an apple orchardist, and while I have been brought up in Florida, and have grown and shipped oranges, I am now raising apples with my uncle in New York State. We have not been satisfied with the methods of selling fruit through commission men, and we have lately been selling it ourselves to the retailers. In that way, we have been try-