who have no outlook beyond the narrow circle of their own provincial experience.

Before some of the trees now growing in Chapman Field reach maturity, there will be over a million Americans living within driving distance of them. I challenge any garden in the tropics to show any such a population of intellectuals near it, capable, as Florida horticulturists are, of utilizing the plants within its boundaries.

In closing I would like to call your attention to some literature which I have sent that should give the members of the Society a clear idea of the present situation.

The Kampong, Coconut Grove, Florida.
April 29th, 1934.

Mr. N. A. Reasoner: I don't know what the situation is with regard to the rest of you, but I didn't know how small a place the Chapman Field Experiment Station was confined to. You go there and you see a large area there, and naturally you assume they have all the space they need, but it was a shock to me to learn that the activities of the garden had been so circumscribed by the small area it actually has, that I feel quite sure it would be the wish of the Society that we do everything in our power to give them a more ample field in which to carry on. I wish, therefore, to offer this resolution, and move its adoption subject to the will of the meeting:

By Mr. N. A. Reasoner:

RESOLUTION

Be It Resolved, that the Florida State Horticultural Society endorse the movement to obtain by presidential decree for the Department of Agriculture from the War Department all the land now known as Chapman Field, to be maintained by the Department of Agriculture as a great Plant Introduction Garden, and Tropical Arboretum.

Be It Resolved, that copy of this resolution be sent to Mr. Knowles Ryerson, Head of the Bureau of Plant Industry, Department of Agriculture, Washington, D. C.

(The adoption of the foregoing resolution was moved, seconded and unanimously carried.)

THE GROWING OF LIMES AND OTHER ACID FRUITS

C. H. Steffani, County Agent, Homestead

There is very little to say to a certain extent in regard to the growing of limes, which I have taken for my subject today. Although the Key lime has been known for a number of years, in fact, since the Spanish landed in Florida, and the Persian limes as long as half a century, yet only during the past few years has the production of Persian limes been taken up to any extent, and the Key limes are practically the same as they were years ago so far as commercial cultivation is concerned.

PERSIAN LIMES

Although the Persian lime has just come into promise commercially the past few years, it has been growing in Florida a good many years. From records in 1898, Mr. Walter Swingle shipped to the Department of Agriculture from Algeria, Citrus Limetta, and in the description mentions that this lime grew wild in Santa Domingo, and somewhat resembled the Persian lime growing in Florida. In 1901 Mr. W. N. Hull bought a lime grove on the Florida Keys. On this grove were three large Persian lime trees, with a trunk six inches through, bearing very heavy, but with poor quality fruits, growing on rough lemon stock. His first job was to take an axe and cut them down, and top worked them to Key limes. In 1914, Mr. Barney Waldin, of Homestead, planted a row of these limes in his grove in the Redland District from budwood taken from a large tree grown in Miami, and has a number of trees at the present time, one of which has a spread of 30 feet and 15
feet in height. This tree has produced in late years from ten to fifteen orange field crates of fruit in a season.

The first commercial planting known to the writer was planted in the spring of 1927, when 13 acres of grapefruit and Valencia oranges were cut off by Mr. J. J. Phillips in the Redland District, and top worked to Persian limes.

The first fruits shipped from this grove by Mr. Phillips did not find any market, and he received 87 cents for the first crate. Having his money invested in this acreage, he realized it would be necessary for him to advertise his products. First he gave it a trade name, Byrum Seedless Lime, got out the necessary publicity, and made a trip to the northern market, to acquaint the trade with the fruit. He found the market, and the public was of the opinion that limes were only good when they had turned yellow, the same as lemons. This was not the case with the Persian lime. When the fruit was a bright, shiny green it was at its best in juice content and flavor.

With educational literature, together with proper grades and packs, increasing demand for limes on the market, and better prices, he had increased his plantings, until at the present time he has about 60 acres in Persian limes. This was perhaps the beginning of the Persian lime industry commercially. Today we find plantings of Persian lime groves in protected places throughout the state, and in Dade County, south of Miami. We have 500 acres in groves planted in from one acre to 60-acre plantings. The majority of this acreage has been planted the past three years.

Unlike other citrus fruits, limes are susceptible to frost in exposed places, and should only be planted in parts of the state where the avocado and mango will grow.

STOCKS

Most of the plantings at the present time are on rough lemon stock, although they seem to do equally as well on grapefruit stock. They seem to be vigorous growers and heavy bearers.

Land is scarified the same as for other citrus or avocado plantings. About 125 trees are set to the acre. They are fertilized every six weeks or two months, with a 5-7-3 or 4-8-5 commercial citrus fertilizer, mixed formula, about five pounds of fertilizer to the tree the first year, 10 pounds per tree the second year and 18 to 20 pounds per tree the third year. Besides using the above mixed formulas some growers use sulphate of ammonia or nitrate of soda. (Persian limes are fast growers and heavy bearers, sometime bearing two full crops a year and a setting of fruit on the tree throughout the year.)

The culture is practically the same as other grove practices, that is, Natal grass or Crotalaria is grown and mowed several times a year and the trees mulched. The trees have a tendency, however, to spread and grow low to the ground so as to provide shade under the tree. Mulch is applied to the outer edges around the tree.

If properly cared for a grove should produce some fruit the second year, about 100 fruit per tree. Between the third and fourth year, with proper care, they should produce from one and one-half to two bushel crates.

KEY LIMES

On the Florida Keys, the Mexican limes, or better known as the Florida Key limes, have been growing for a number of years. Prof. P. H. Rolfs, in his bulletin, "Citrus Growing in the Gulf States," published by the United States Department of Agriculture in 1906, speaks of limes growing in considerable quantities in a wild state, without cultivation and apparently naturalized, probably introduced by the Spaniards. Very little attention to the selection of better seedlings bearing fruit of uniform size has been done. Mr. W. N. Hull, of Key Largo and Miami, has done some work in selecting budwood, and has about 10 acres budded on rough lemon stock. In this planting the trees seem to grow well and suffer less damage from storm conditions, although practically all plantings are seedlings, growing apparently in jungle form with no uniform style, wherever a place could be found with sufficient dirt to cover the roots in the rough rock, or perhaps seeds planted.

Mrs. W. J. Krome has on her place near Homestead a lime tree growing from select seedlings of the Florida Key lime obtained from Dr. H. J. Webber, that appears to be somewhat resistant to
withertip. The tree grows well with fruit almost perfectly round. The writer has had occasion to observe some of these trees growing in the Redland District, below Miami, and they look very very promising commercially for growing on the mainland of Florida.

There are about 600 acres of limes on the Florida Keys. No attempt is made to carry on grove practice as the trees do not seem to respond to grove culture practiced on the mainland. All plantings are in the rough. The only culture is cutting the undergrowth for mulching the trees, and in some instance a small amount of fertilizer is used. The opinion, however, is that moisture is the most important item in lime production. When sufficient rainfall is available, the trees bear very heavily, and fertilizer does not seem to improve the quality.

The task of growing and harvesting limes on the Florida Keys is not an easy one. Negro labor has to be entirely depended upon as limes are harvested between May and October, when mosquitoes, at times, are almost unbearable, and as much as $1.50 to $2.00 per crate has been paid to negro labor for harvesting. In the summer of 1926 12 carloads of limes were shipped from the Florida Keys to the northern markets, which was only a part of the crop raised on 250 acres.

PERRINE LEMONS

The Perrine lemon is a hybrid resulting in a cross between the West Indian lime and the Genoa lemon made in 1909 by Mr. Walter T. Swingle, of the Department of Agriculture, Washington, D. C. This hybrid has the added advantages that so far it has proved immune from the two worst diseases of the lime and the lemon, the withertip of the lime and the citrus scab of the lemon. It is remarkable that this hybrid should develop the immunity of the withertip from its lemon parent and immunity of the citrus scab from the common lime.

It was named the Perrine lemon after the horticultural pioneer of South Florida, Dr. Henry Perrine, who in 1838 received from Congress a grant of land on Biscayne Bay south of Miami for horticultural purposes.

The fruit has much the shape and size of the ordinary lemon, ranging from two to two and one-half inches in diameter by two and one-fourth to three inches in length, pale yellow color, thin, tough rind and slightly rough, very juicy pulp, more like a lemon than a lime, sharply acid, with from four to six seeds.

The tree is much more hardy than the common lime and appears to be slightly more hardy than the lemon. It grows well on rough lemon stock, although the largest tree at the present time in the Redland District is growing in the citrus test on Mrs. W. J. Krome's place planted in 1928 and growing on Shaddock stock. This tree is growing well and has produced a crop the past three years. It is reported trees growing on rough lemon stock on the Florida Keys have outgrown the stock at the union.

There are several young plantings on rough lemon stock and grapefruit stock in the Redland District that look very promising at the present time. With its immunity from the diseases stated above, its productiveness, size, excellent keeping qualities and thin skin it should play an important part in the future in the lemon industry of Florida.

F. M. O'Byrne: Do you have in your section trouble with stem end rot on the Persian lime? Do you have trouble with withertip that kills off the branches, and what happened to the large acreage of Persian limes that was planted down in your section by Gillette interests, and others?

Mr. Steffani: There has been no large acreage that I know of out of rough lemon stock. You may mean the lime grove northwest of Homestead. They are not Persian limes.

Mr. O'Byrne: I understood they started a Temple orange grove.

Mr. Steffani: No, sir, that's the old Comfort lemon grove. Your blossom end rot does not appear on the fruit when it is green. When it is yellow it's not good to use. The time to use Persian limes is when they are a bright, shiny green, and they have their full capacity of juice.

Mr. C. I. Brooks: What you were inquiring about was a grove of 100 limes northwest of Homestead at a time when the Persian lime was not introduced in the country. They budded it over on the Temple orange, and it has since gone to pieces. It was just opposite from what you understood.