gratitude to you for every effort you have put forth for our entertainment.

I wish to thank you individually and collectively for what you have done for our comfort and pleasure. My own heart, and the heart of every member of the State Horticultural Society, goes out to you for the many fine things you have done and will do, for us while we are with you. We are indeed grateful that this meeting gives some of the best citizens of Central and South Florida an opportunity to learn more of your splendid section.

The ten counties west of the Apalachicola River have an area of 7,619 square miles, more than half as large as Holland, half as large as Switzerland, nearly as large as New Jersey, twice as large as Connecticut, and four times the size of Rhode Island. It is nine-tenths as large as Massachusetts, yet Massachusetts has twenty-one times as many people, and an assessed valuation of more than $6,000,000,000. This shows the potential possibilities of this part of West Florida. When this wonderfully rich section is developed like those states I have mentioned, Pensacola will be a San Francisco, and Panama City and Marianna cities of 100,000 people.

And why not—with soil and climate second to none, with six of these counties bordering on the Gulf of Mexico, the other four connected with it by navigable rivers, with two of the finest harbors south of Norfolk, and Pensacola bay as beautiful as the bay of Naples, and large enough to accommodate the navies of the world, and with a straight sail to a dozen or more rich countries south of us, with millions of acres of cheap land, and building material enough to build a city as large as Chicago, with a health record as good and death rate as low as any part of the United States, and in the same latitude with the land that the Lord said should flow with milk and honey, with advantages legion and disadvantages nil, this potential empire should not be surpassed by a like area—anywhere on God's footstool.

But I am about to forget the pleasing proprieties of the occasion: Thanking you again let me say we fully appreciate your sincere and hearty welcome, and accept the hospitality of your picturesque and beautiful city with grateful hearts.

I thank you.

MODERN TRENDS IN SOUTHERN POMOLOGY

Prof. T. H. McHatton, University of Georgia, Athens, Georgia

Fashions change with the passing of years, and what was considered correct a decade or more ago is now out of style. We can look about us on all hands and see these various changes taking place. It should be realized that the kaleidoscopic activities of modern life have not passed the profession of horticulture by. Our business has changed greatly within the past quarter of a century, and still it seems to be in a state of flux, possibly more disordered today than it was some fifteen years ago, because at that particular period we had more or less fixed ideas concerning many of our operations and methods of procedure. Now these ideas have been changed in the light of modern discovery.

Possibly the most outstanding fact of present day horticulture is that it is becoming more scientific with the passing of each season. By this it is not meant that we are becoming more highbrow each year, but that we are looking closer into the whys and wherefores of things and working out annually more practical applications of our knowledge. If one carefully studies the work now in progress in many of our southern experiment stations and colleges, they find this work to be ultra-scientific. A large proportion of it is being done with the microscope and the microtome. We are looking much more closely into the vital function and life processes of the buds of plants, realizing that if we are to produce profitable crops we must be able to set on the boughs of our plants, annually, the necessary buds
for the protection of these crops. Our experimental work with fertilizers, cultivation, general orchard handling and things of like character, has not always given us the results that we desire; and, therefore, those interested in our fields have realized that there is something yet to be learned, and that something dealt primarily with the buds themselves. We are seeking information as to how they are initiated, as to when they develop, and as to the chemical constituents of the plant when this development takes place. We are studying the very “isness of the it,” realizing that, if practical success is to be had, we must lay down our fertilizers, and practise our seasons of cultivation, whatever they may be, at just the right and proper time to develop these all necessary buds on our plants. One of the outstanding modern trends is toward truly scientific investigations of plants and their response to environmental conditions. More must be learned about winter killing.

From these studies we have come to some new realization of pruning. Twenty years or so ago it was the general practice to chop and cut trees heavily. Arguing from a study of a very few plants made by one of the outstanding minds of our profession, it was concluded that the heavy pruning of the top of a plant tended toward the increase in its wood growth, and that this heavy pruning had beneficial effects along other lines. Unfortunately, these wide ranging conclusions were drawn from too few experiments, and it was only after experimenters had worked with thousands of plants under many various climatic conditions that it was finally learned that the heavy pruning of a plant disorganized its nutritive balance and was more detrimental than beneficial in the final analysis. Consequently, we are getting away from the old practice of heavy butchering and learning to thin our plants, to open them up and to cut them back only when necessary. Of course there is a difference in the pruning of the different species and no general ruling can be laid down. However, the modern tendency is toward light pruning for openness and for shade. The knife is spared in an effort to rectify physiological and nutritive conditions in our plants. Much more is yet to be learned along this line. Many more mistakes will be made, but I feel that in the light of present information it may be said that future pruning operations will be considerably different and lessened from those of the past.

Studies in root development and in soil moisture content are beginning to change our ideas of orchard cultivation. It has been emphatically stated by many teachers of horticulture that the only way to handle an orchard was to plow it in the early spring, cultivate it consistently once every week or two until the middle of the season, and then to sow, along in July and August, a cover crop that should be permitted to remain on the ground until the following season when it should be turned under by the plow. These statements have been made without fear of contradiction and laid down as the law. These methods are now receiving great questioning. We have reports from pieces of soil that have not been cultivated that have maintained their moisture content better than those which have had a surface soil mulch on them. It must be said that the weeds were killed and all vegetation removed. We have experiments and demonstrations that show that cultivation really loses moisture under certain conditions rather than conserves it. We have studied the roots and the moisture content under sod and under sod-mulch and found that trees did well and that the moisture was maintained under conditions that many years ago were thought to rob the plant of moisture.

We see orchards that are covered with heavy growths of kudzu, maintaining their vigor, producing bountiful crops and, to all appearances, being better than those just across the road where the old system of cultivation and summer and winter cover cropping is carefully followed. No longer are we willing to lay down the law that just this or that or the other should be done. Right now our ideas of orchard handling in the South are up in the air, and before anything definite can be said about it, considerably more investigation must be done, and by this I do not mean demonstrations; I mean careful, consistent study of basic scientific facts, and after this information has been obtained we may be able to work out a satisfactory method of
general orchard cultivation and management. The results that have been obtained in the soils and under the climatic conditions of the East do not seem to hold true for the hot and humid conditions of the South.

Our respect for organic matter is constantly on the increase. We have seen its presence in soils correct disease conditions in trees. We are now watching with a great deal of interest the development of Crotalaria, Austrian winter peas and other cover crops and the use of mulches of pine straw and such material in the orchards of the South.

Possibly nothing has changed to a greater extent than spraying. The increase in pressure has been notable. For one who has lived in the South since the very dawn of this spray business, it is marvelous to note what has happened; from the simple barrel pump to the power outfit, and then to the duster, and from that to the airplane, and now back again to an outfit giving from 400 to 500 pounds nozzle pressure, and in many instances to the stationary outfit piping the material through the orchard and giving rapid and successful results, cutting down labor and time to a minimum, putting spraying on a basis where it can be done even though the ground under foot is wet and soggy, giving the growers the opportunity to rapidly get over large orchards independent of spray tanks, water hauling and mules. It may also be said that the time will come when practically every orchard of size will be handled by a central spray outfit from one location. We may even visualize a central community spray outfit where all the grower will have to do will be to turn on the valve from the general main to his orchard lines and start the hoses.

Our machinery is changing. The poor old mule is rapidly disappearing and in his place we have the tractor; and, should we cut down on the cultivation and install central spray systems, the machinery problem on the fruit farm becomes so greatly minimized that we pass it over and recognize that in it we have reduced our overhead, increased our day's work and greatly heightened our efficiency.

Economically we are viewing things differently. Quality production means more than quantity and is the topic of discussion for the day. We have learned that we cannot produce under protection and sell on the open markets of the world at a profit. We have learned that the great economic principles followed by big business concerns must also be followed by agriculture if we expect to survive. Just how far the southern farmer and fruit grower are going to be brought together in large organizations for the controlling of production and the distribution of products remains yet to be seen. There is something in the psychology of the South that is opposed to gathering together in masses and being led by a few.

Constantly we are looking for new crops. Just before us is the development in the blueberry. Will we learn to handle it from the experiences of the past, or must it go through the same period of over-advertisement and heated excitement that has attended the apple in the West and the pecan in the South? What about the possibilities of our fig production? Have we thought sufficiently of it, and may we ask what is going to be the future of our pecan?

Speaking of pecans, this crop shows more of the modern trends along horticultural lines in the South than any other. It has recently been organized into a national commodity association through the efforts of the Federal Farm Board. This organization was perfected following investigations of conditions by the Farm Board and the calling of a meeting in Washington for organization purposes by interested growers and representatives of existing co-operative associations. These committeemen harmonized the industry and organized directly under the auspices of the Federal Farm Board the National Pecan Marketing Association, which has representatives all through the South. It has already established numerous local co-operative associations, all doing business through the National Association. The pecan is among the first horticultural products of the United States to take advantage of the opportunities offered by the legislation recently passed by our Congress. It is organized just exactly the way the Federal Farm Board wants it organized, and it has everything back
of it to make a success out of its business. This organization demonstrates the trend of our present southern pomology toward co-operation and follows the principles of economics as laid down by big business.

The fruit grower must become a financier; he must be a scientist in the truest sense of the word, and by this I mean a man who applies the fundamental principles and laws of science to the profitable and economical production of a crop. The trend of modern things is toward the development of an entirely new type of fruit growing. Another twenty-five years will so have changed the face of the map of horticulture that those of us, working today, will find ourselves much in the same position as we do at the present time trying to keep the new countries of Europe straight, following the great war.

TUNG OIL

Harold Mowry, Florida Agricultural Experiment Station, Gainesville

The growing of tung-oil trees is probably creating more interest than has any plant introduction of recent times. This interest is not confined to Florida alone but is evidenced in some of the other southern states as well as by persons in northern states who would grow the tree in the south. The present interest in tung-oil growing and the initiation of commercial plantings of today had their inception in some plantings made at Tallahassee and at Gainesville on the test grounds of the Experiment Station. Due to the very promising showing made by the trees at the latter place an acreage planting was first made in the Gainesville area in 1923 which was followed shortly thereafter by others. Since that time there has been a mounting increase in plantings in the state that has brought the present total to approximately 5,000 acres. In addition to the grove acreage there are now some 2,000,000 nursery trees available for planting this coming season. Reports from other states have indicated a field acreage of between 1,500 and 2,000 acres in Georgia, Alabama, Mississippi and Louisiana.

The greater portion of the Florida acreage is in Alachua, Levy and Clay counties. There are numerous smaller plantings in other northern and central counties and a few in the southern area.

Just what the range of adaptability of the tung-oil tree will be in Florida or in the South is not yet known and will not be definitely determined until such time as properly-cared-for test plantings are made in all sections. The Experiment Station in past years has sent out numerous lots of seed and some nursery stock for testing purposes. Reports from these test lots and other plantings have shown the tree to make a satisfactory growth in many of the counties north and west of Marion county. Some counties had no plantings and others furnished no reports. This would indicate that the tree, from present known information, can be grown in most counties of north central and northern Florida. It does not by any means necessarily indicate, however, that the tree is adapted to all locations and soils within that area. Neither would the failure of a planting in some vicinity mean that other soil types or locations adjacent would not be adaptable. Most failures reported have been from either a lack of the necessary care or from poor drainage conditions. Plantings have recently been made in some of the more southern counties which should later give definite information relative to the adaptability of the tree to that portion of the state.

The northern range of the tung-oil tree will be determined largely by minimum winter temperatures. Trees at Gainesville have withstood fifteen degrees F. when they were in a dormant condition with no apparent injury. Sudden drops of temperature to below freezing in early fall or spring have a tendency to do more injury than do much lower temperatures in mid-winter. Damage to blossoms has occurred in some instances by freezing temperatures following periods of warm weather in late February or early March. It is important in this connection that sites having good air drainage be chosen for planting.