down in Coral Gables in the 1935 storm. In proof of this I cite the row that bordered the east side of Cordova Street south of Coral Way where a power line necessitated topping the trees so that none was overturned by the high winds while most of those on the west side of the same street which had not been pruned were blown over or partially uprooted.

Thirdly, of course, at least a minimum amount of consistent care, especially fertilizing will greatly reward the time and care expended.

Lower Florida with its adequate resources of native and introduced trees can be made a section of such beauty that we as yet do not adequately comprehend. May we not continue to follow the traditions of older communities where the associations of trees has made a richer and more beautiful environment in which we may feel the artistic efforts of those that have gone and the stimulus of those that are enriching for the future.

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**TROPICAL SISTERS OF THE TUNG-OIL TREE**

**Dr. B. S. Wolfe, Homestead**

The tung-oil tree has already made a place for itself among the flourishing industries of Florida, and extensive plantings of it are to be found in the northern part of the state, with even larger acreage in Mississippi and smaller ones in Georgia and Louisiana. The area suited to the culture of this tree is limited by temperature considerations to a rather narrow band along the Gulf Coast, where the trees can go into a pronounced dormancy in winter and yet are not subjected to temperatures as low as occur further north. Attempts to grow the tung-oil tree in central and southern Florida have been rather uniformly unsuccessful, so far as any commercial possibilities are concerned.

It is not a matter of general knowledge, however, that there are two sister species which are very much at home in the most tropical part of Florida and which flourish where the avocado and mango do. The purpose of this paper is to draw attention again to these two tropical species, to point out the possibilities which they seem to offer, and to dispel certain misconceptions which seem to have arisen regarding them. They are the Candlenut or Lumbang, *Aleurites moluccana*, and the Soft Lumbang or Baguilumbang, *Aleurites trisperma*.

Before discussing these species it might help to clarify the situation if a word is said regarding the peculiar properties of tung oil which make it so valuable in the paint and varnish industry. Linseed oil has been for many years a valuable constituent of paints and varnishes because of its being a so-called “drying oil.” This means that when a film of it is exposed to the air, it rapidly absorbs oxygen and hardens into a firm coat which is very durable. Tung oil is a far more rapid drying oil than linseed oil, and has the further important advantage of producing a really water-proof coat. Varnishes made from it do not turn white even on long exposure to water. The two qualities of very rapid drying and of waterproofing are the chief factors which make tung-oil paints and varnishes superior to those made from linseed oil alone.

The Candlenut tree, *Aleurites moluccana*, is native to Malaya probably, but is found in nature widely distributed throughout southeastern Asia and the islands of the Pacific. The name by which it is commonly known indicates the use to which it was put by all the Polynesian peoples. A splinter of bamboo or a rib of a coconut leaf was strung with kernels of this nut, and with the wood as a wick and support combined, the string of nuts made a natural candle for lighting houses. It is probable that this use is of great antiquity and that it is the reason for the present very wide distribution of this species. The tree is rapid growing and attains a large size under favorable conditions. Its leaves are distinctive among the Aleu-
rites species because of a prominent white bloom on them when they first appear, so that the new growth seems to have been dusted with flour. The nuts are provided with a very hard shell, like a hickory nut.

This tree has been known in southern Florida for a long time. It was offered by Reasoner Brothers in 1888, and a report made by E. N. Reasoner in 1897 listed it as a species which had definitely proven adapted to Florida conditions. There are a number of fine specimens in the Redlands district, besides others in Lee, Brevard and Palm Beach counties and in other parts of Dade County. Such trees as the writer has seen have produced good crops of fruit, although no records are known of the actual yields from any trees.

The vigorous growth and heavy fruiting of the candlenut have seemed to some people arguments in favor of its culture commercially in southern Florida, with hopes of an industry for that part of the state which would be comparable to the tung-oil industry in the north. There are a number of reasons why this hope is delusive. Most important of these is probably the fact that the oil produced from the candlenut is similar in properties and value to linseed oil and not to tung oil. This has long been known to scientists, but has not so generally been known to the public at large. A second reason is found in the very thick and hard shell of the nut. In 100 pounds of candlenuts there are only about 30 pounds of meats, while the tung-oil nut has 60% of its weight as meat. Special machinery would have to be used also for cracking these heavy shells, although this is not a major difficulty. The candlenut has been produced commercially in Hawaii, where there are several thousand acres of it in forest form. Perhaps it can be grown in Florida to compete with linseed, and in any case it is a handsome and vigorous shade tree, but it is not a possible competitor of the tung-oil tree.

Before leaving the candlenut, something should be said concerning the edibility of the nuts. This species was originally introduced as a fruit tree valuable for its nuts. All accounts of it from its native haunts stress the poisonous nature of the kernels unless they are roasted, but apparently it has sometimes been eaten with impunity in Florida. Simpson, for instance, in his "Ornamental Gardening in Florida" says: "It is believed that with careful selection a fine, edible nut may be raised from this tree in Lower Florida, where it seems to be entirely free from any poisonous qualities that have been claimed for it in other places." It is possible that these nuts have much less of the toxic principle when grown in Florida than when grown in the Philippines or Hawaii, but the writer knows of some cases where eating very small quantities of the nut meats has been followed by extreme discomfort. There may also be variation in this respect among seedling trees as well as variation among the humans who eat the nuts in regard to their susceptibility to toxic reaction. This is certainly the case with the related Physic-nut, of which fruit from the same tree may be as harmless as peanuts to some people and cause others to become violently ill. At any rate the eating of the candlenuts should be done with great caution.

The Soft Lumbang, Aleurites trisperma, is native to the Philippines and has not attained even a portion of the fame of its sister species: The Philippine name for the candlenut is lumbang, and because this closely related species has nuts with very thin shells, easily crushed with the fingers, it is called soft lumbang. The tree is also of rapid growth, but is not reported as reaching nearly so large a size as the candlenut. The tree is leafless for only a very short period in late spring just before the rather inconspicuous small white flowers appear in large numbers.

The first introduction of this species into Florida, so far as the writer knows, was made in 1909 by the U. S. D. A. Several later introductions were made in 1916 and 1917, all of these being from the Philippines. Two or three trees growing and fruiting near Homestead are from one of these later introductions. Some of the first introduced seeds were sent to Porto Rico, and in 1919 the trees from this seed were reported as fruiting more heavily than the candlenut trees. However, recent reports are that no specimens of the soft lumbang are left in Puerto Rico at all.

No other specimens of the soft lumbang are known in Florida to the writer than the three above mentioned, and no record has been kept of
either the regularity or the abundance of the fruiting of these trees. It is reported to fruit irregularly in the Philippines, but there are no records of actual performance. A good crop was borne by the Homestead trees in 1935, but practically no crop in 1936. This alternate bearing may be characteristic of the species, or may have resulted from the storms in the fall of 1935.

The oil of the soft lumbang is very similar in its properties to tung oil, and is fully as valuable for varnish manufacture. This fact was pointed out nearly 20 years ago, but attracted little attention at the time. The development of the tung-oil industry since then has served to call attention once more to the possibilities of this species with similar oil but adapted to southern Florida.

What is most needed at present is to gain for the soft lumbang a wide testing in various parts of the adapted portion of the state and to obtain reliable data of the yields produced. The species seems to offer distinct possibilities.

INTRODUCTION OF GOVERNOR CONE, MEMBERS OF HIS CABINET, AND MEMBERS OF DELEGATIONS FROM THE SENATE AND HOUSE OF THE 1937, FLORIDA LEGISLATURE IN SESSION AT TALLAHASSEE

(Program Broadcast over Station WRUF)

Mr. Lyons: Ladies and Gentlemen: I have the honor to present to you His Excellency, Fred P. Cone, Governor of the State of Florida, the Honorable Cary D. Landis, Attorney General of Florida, the Hon. R. A. Gray, Secretary of State, the Honorable J. M. Lee, Comptroller of the State of Florida, the Honorable Nathan Mayo, Commissioner of Agriculture, and Mr. Colin English, Superintendent of Public Instruction.

At this time I would like to introduce Mr. Frank Holland.

Mr. Holland: Mr. President and Fellow Members of the Society: Polk County wishes to yield this pleasure to Marion County. With permission of this Society I am going to ask Horace Smith of the Marion County Chamber of Commerce to introduce the other distinguished guests.

Mr. Smith: Mr. President, Ladies and Gentlemen: We have with us this afternoon the Senator from the 20th District, C. A. Savage, Chairman of the Senate Group from Tallahassee, honoring us with their presence. I yield the floor to Senator Savage.

Senator Savage: Ladies and Gentlemen: The Senate of the State of Florida thought enough of this semi-centennial celebration here today to appoint a committee of five senators to represent the Senate here, and come here from Tallahassee and in that group we have Senator McKenzie, Senator Farrish, Senator Holland and Senator Westbrook.

Mr. Smith: We also have with us A. P. Buie, a member of the Legislature from Marion County, who will present those representing the lower house at Tallahassee.

Mr. Buie: Ladies and Gentlemen: Without adding to what Senator Savage has said to you about the action on the part of the Senate, the House took the same action. It is my pleasure to introduce to you the members of the House delegation, Messrs. Mays of Jefferson County, Drummond of Holmes County, Harris of Alachua County and Sinclair of Polk County.

Mr. Lyons: Governor Cone, Honorable Cabinet, Senators, Representatives and Distinguished Guests, Ladies and Gentlemen: We feel it quite a distinction to be honored by the presence of the Governor and his Cabinet, the Senators and Representatives of the State of Florida, to attend our Fiftieth Anniversary, a Golden Jubilee Meeting of the Florida State Horticultural Society. We will remember, please, that the Legislature is in session, and as you know it is not a very easy matter to get away just at this time. However, the