

trees. As the number of trees measured in each sample was necessarily small, the measurement values must be borne in mind in the evaluation of the data.

The data in Table 1 indicate a marked superiority in growth of the Khaya over the pine at the three ages measured. The mahogany trees were almost twice as tall in over-all tree height and produced about twice as long a clear log as pines of the same age. The girth at the bottom of the log of the Khaya trees was almost twice as great at 9 years, and was more than twice as great at 10 and 11 years of age, as that of pines of a similar age. The greatest difference, however, is in the comparison of log volumes. At all three ages the Khayas produced a little more than five times the volume of potential log of the pines. The bark was calculated in this volume. It can be noted from Table 1 that the bark on the mahogany was not as thick as on the pine. This would tend to accentuate the difference in

log volume of actual wood. There is a general increase in tree size and log volume as the trees increase in age in both mahoganies and pines.

The growth made by these young East African mahogany trees has been most spectacular, especially when compared to the native Caribbean pines. How they will continue to grow best and what diseases and insect pests they may eventually fall heir to remains to be seen in the future. The older trees have not bloomed to date. In the summer of 1940 one 3½ year old tree put out a large panicle of bloom but failed to set seed. In a conversation with Dr. W. L. Thompson in 1940, he stated that the trees attained a large size and were about 20 years of age before they bloomed in Northern Rhodesia. From their performance to date the *Khaya nyasica* trees appear to be the most promising hardwoods for reforestation in South Florida that have been tested by the Sub-Tropical Experiment Station.

NEW VARIETIES OF MANGO FOR FLORIDA

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Ever since its introduction in 1910 the Haden mango has dominated the Florida scene so far as mangos are concerned. It has magnificent coloring, it has good quality, even if not the best, and in the earlier mixed plantings it was prolific by comparison. But we have long recognized that Haden has several defects, the most notable being its shy bearing in solid block plantings, and for the past twelve years the authors have searched for some new variety to replace, or at least to offer competition to, the Haden.

It is not our intention to suggest that we

have in any sense discovered the new varieties herein described. But we have examined, measured and made careful notes on all of them over several years, as well as on dozens of other seedlings which seemed to have some promise. No descriptions are found in the literature for any of these, and we wish to place on record technical descriptions of these new varieties which seem to us to have real desirability for commercial propagation. In addition we have included two varieties of long standing for which no adequate descriptions are known to us in print in this country.

All descriptions have been modeled after the excellent ones given by Popenoe in his Manual for the varieties then standard.

The recognition of promising new seedlings is not as easy as it sounds, and it is not surprising that we can point to very few new varieties of promise which have been brought forward in the last twenty years. Factors which must be considered are, of course, attractiveness of appearance, excellence of quality, freedom from fibre, heaviness and regularity of bearing. There has been no dearth of attractive seedlings, many equalling or surpassing Haden in color; but on the other hand, some seedlings of excellent quality have no color appeal. Frequently we hear of an attractive seedling, only to find that it is full of fibre, and while turpentine and No. 11 seedlings still bring fair return in local markets, we cannot suggest deliberate propagation of any but fibreless fruit.

The bearing habits of a new variety are of particular importance because so difficult to evaluate. There may be only a few fruit left on the tree as you find it, and the proud owner assures you that it bears heavily and regularly. But he has rarely kept any record of actual performance. Then, too, a single parent tree may be located in a particularly favorable place from the standpoint of nutrition and water, so that its productivity is not a fair sample of what its progeny will bear. It is very desirable to topwork other trees and see if they repeat the original performance, before propagating a new seedling extensively as a variety.

In the 23 years since Wilson Popenoe wrote his Manual, there have been very few additions to the list of varieties desirable for planting in Florida, although we have almost abandoned some which he includes. The best known addition is one which was first described before this Society by John Beach in 1923, and which is probably the variety most widely grown after Haden. This is the Brooks, sometimes called Brooks Late.

Brooks

Origin—A seedling of Sandersha, planted on property of colored man named Brooks at Miami about 1910. Fruited first about 1916

and propagated commercially since 1924. (Fig. 1).

Description—Form oblong, plump; size large, weight 400 to 800 g., length 12.0 to 15.0 cm., width 8.0 to 9.5 cm., thickness 7.5 to 8.5 cm.; base rounded, the rather slender stem inserted slightly obliquely without a depression; apex broadly rounded, beak none, the nak inconspicuous, about 2 cm. above the apex; surface smooth, light yellowish-green in color, sometimes blushed scarlet on the exposed shoulder or cheek; the dots medium large and whitish; skin tough, thick; flesh bright yellow in color, meaty, moderately aromatic; dessert quality fair to good, culinary quality good; stone oblong, thick, with abundant fine fibre on the ventral edge. Season in Florida, August to October, chiefly in September. The tree bears very heavily as a rule, and the very late season has somewhat compensated for the deficiencies of quality and color. It often makes weak growth because of heavy bearing.

Next to Brooks we would list one of the newest varieties, and one which has been patented in accordance with the changing times. This is the most promising new variety of which we know, and has been tested with unusual care before commercial propagation has been undertaken. It is the Fascell, also from Miami. Mr. Fascell has yield records on one topworked tree for several years, in addition to the record of production of the parent tree. There is still the possibility that there may prove to be some pollination problem if trees are planted in solid blocks, since Mr. Fascell has had some other mango varieties adjacent to the Fascell trees, but time alone will tell us that, probably.

Fascell

Origin—Seedling of Brooks, from seed planted in 1929 by Michael Fascell, Miami, Florida. Fruited in 1936 and offered as nursery stock in 1942. Plant patent No. 451 in 1941. (Fig. 2).

Description—Form ovate, compressed laterally; size medium, weight 250 to 500 g., length 9.5 to 11.5 cm., width 8.3 to 10.3 cm., thickness 6.3 to 8.3 cm.; base rounded, the slender stem inserted a little obliquely in a

slight, grooved depression; ventral shoulder very full, rising only slightly from the base, dorsal shoulder falling steeply; apex broadly pointed or rounded, beak none, the nak inconspicuous in a slight depression about 1.5 cm. above the apex; surface smooth, pale yellow, blushed dark carmine on the exposed side, with scanty bloom and large whitish yellow dots; skin fibreless; flavor rich and aromatic, quality good. Season June 15 to August 15, mostly in early July, in Florida. The variety has been exceptionally prolific and regular in bearing and the fruit ships very well.

We may add that Mr. Fascell reports that he has found little tendency to development of anthracnose by these fruits thus far.

We turn to West Palm Beach for another variety which is not new to you but which has been propagated on a rather small scale thus far, the Springfels. The few trees which we have seen bearing in the Redlands and Miami areas have not borne so heavily as the parent tree, but this was a rather small and misshapen specimen because of its being right next to the house, and its bearings was large, only because the tree was poorly developed. If the trees bear heavily when well grown, the variety has much promise.

Springfels

Origin—Seedling of Haden, probably pollinated by Sandersha, from seed planted in 1919 by Charles Springfels, West Palm Beach. Fruited first in 1925 and propagated commercially on small scale since 1930. (Fig. 3).

Description—Form oblong, chunky; size large, weight 600 to 900 g., length 15.0 to 17.5 cm., width 9.0 to 11.0 cm., thickness 8.0 to 10.5 cm.; base rounded or obtusely tapering, the stem stout, inserted almost squarely on a slightly raised button; ventral shoulder slightly larger than the dorsal, but both falling from the stem usually; apex broadly rounded, beak none, the nak inconspicuous on the flattened dorsal side about 2.5 cm. above the apex; surface smooth, light to orange yellow, blushed deep maroon on the exposed side, shading to light crimson on the shoulders, with numerous, large white dots; skin thick, tough, adhering to outer layer of flesh; flesh light to orange yellow in color, firm, juicy,

with a small amount of fine fibre which is not objectionable; flavor sweet, rich; quality fair to good; seed long, slender, slightly curved, with long, fine fibre. Season in Florida late July and early August.

Another variety which has been patented is the Fragrance, and we must confess that we include it chiefly because of this fact, rather than because of proven performance. The parent tree has borne well, but we know of no adequate tests of its progeny thus far. Bad luck has dogged its footsteps, for the occasional cold snaps of recent years have found these trees very young and tender and have wiped them out several times, as well as destroying nursery stock. We do not know of bearing trees other than those of the originator, Mr. Edward G. Wilkinson of Naples. We do not know about disease resistance, but after visiting the original tree in July we can testify that the variety is very resistant to mosquitoes!

Fragrance

Origin—Developed as seedling of unknown origin on place of Judge E. G. Wilkinson, Naples, Florida. Fruited first about 1930, offered as nursery stock in 1935; plant patent No. 119 in 1934 (Fig. 4).

Description—Form oblong-ovate, fairly plump; size small to medium, weight 250 to 350 g., length 9.5 to 11.0 cm., width 7.0 to 8.0 cm., thickness 6.7 to 7.1 cm.; base obliquely flattened, the stem slender, inserted obliquely in a slight groove; ventral shoulder rising and full, the dorsal shoulder falling steeply; apex broadly rounded, without beak, the nak quite inconspicuous about 2 cm. above the apex, with a slight hollow just above it; surface smooth orange yellow with light crimson blush on the exposed side, bloom none, dots small, white; skin medium thick, tough, not adhering to flesh closely; flesh orange yellow in color, fairly firm, juicy, nearly free of fibre; flavor rich and sweet, quality good to very good. Season in Florida, July. The fruit is especially characterized by a delightful aroma, whence the name. So far as is known, there are no fruiting trees except those of the originator at Naples, as periodic freezes in the last 6 years killed young trees and nursery stock.

The last of the very promising new varieties which we feel able to recommend definitely is the only one whose parentage is definitely known. The late Edward Simmonds, long the Superintendent of the U. S. D. A. Plant Introduction Garden at Miami, was impressed as early as 1920 by the greater resistance to anthracnose attack shown by the seedlings from the Philippines and Indo-China, which we may designate as the Saigon race. In the article by John Beach in 1923, above mentioned, he says that Mr. Simmonds is already trying to cross the Saigon and Indian races. Several crosses were made, using Carabao (seedling) pollen on Haden flowers, and at least three fruits matured. The resulting seedlings were numbered, and one of them we now propose to name in honor of the originator, with the approval of Mrs. Simmonds.

Simmonds

Origin—One of a series of crosses between Haden and Carabao (Seedling) made by the late Edward Simmonds about 1928. This was Haden x Carabao No. 1, and is by far the best of the three seedlings resulting from these crosses. Fruited 1934. (Fig. 5).

Description—Form ovate or oblong ovate, only slightly compressed laterally; size medium to large, weight 375 to 525 g., length 10.7 to 12.0 cm., width 8.0 to 9.5 cm., thickness 7.7 to 8.5 cm.; base obliquely flattened, the stem slender, inserted obliquely in a very slight depression; ventral shoulder rising, dorsal shoulder falling; apex broadly pointed, the nak evident about 2.5 cm. above the apex, slightly depressed; surface smooth, greenish-yellow to light yellow in color, suffused with crimson blush on the exposed side and covered by a pale lavender bloom, dots small and yellow; skin thin, not very tough, separating fairly readily from the flesh; flesh orange yellow in color, medium firm, juicy, fibrous only next the seed, and of piquant spicy flavor; quality very good; seed with short fibre on the ventral edge chiefly, polyembryonic. Season in Florida, July or August, slightly later than Haden. So far as is known the variety has not been propagated commercially, at least not with the owner's permission.

In recent years we have found some of the Indian varieties introduced early in the century to have more promise than we once supposed. One of these in particular, the Borsha, has attracted enough attention that we feel a technical description should be available.

Borsha

Origin—Introduced as scion wood in January 1902 from Poona, India by the U. S. Department of Agriculture as S. P. I. 8442. (Fig. 6).

Description—Form ovate, compact; size medium, weight 350 to 500 g., length 9.5 to 11.5 cm., width 8.4 to 8.8 cm., thickness 7.6 to 8.2 cm.; base broad, flattened, stem rather stout, inserted slightly obliquely on raised button in slight groove; ventral shoulder very full and rising hardly any, dorsal shoulder falling; apex broadly rounded, the curve ending ventrally in a distinct but very obtuse beak; the nak occupying the tip of the beak, inconspicuous, about 1 cm. above the longitudinal apex; surface smooth of very slightly rugose, green or yellowish green, blushed dark crimson on the exposed side in the sun, with a slight lavender bloom and large yellow dots; skin thick, tough, separating fairly readily from the flesh; flesh orange color, medium firm, juicy, with little aroma, fibreless; flavor sweet, rich, spicy, quality very good; seed with medium thick husk and large beak laterally on the lower end, covered with short fibers, monoembryonic. Season in Florida, August.

It is not to be supposed that the authors consider the above described varieties to be the only promising new ones in the state. A great many others are under observation. There are several outstanding seedlings under observation on the West Coast carrying the name of the owner of the property they are on, such as Adams, Davis, Kennan, Pettigrew and Pruter. There are also some on the East Coast of the State, such as Anderson, Kent, Bennett Seedling, Wilson Saigon, and James Saigon. We do not feel that any of these warrant full description at the present time but, as they prove their worthiness, they will be brought before the Society in the next few years.