promising peach varieties for rootstocks seem to be Lemon Free, Banner, Champion, Gold Drop, Admiral Dewey, and Lovell. Another important factor which must be considered is the availability of seed in large quantities. From this standpoint, the Lovell has a distinct advantage since it may be obtained in large quantities from the drying yards in California. The Lovell seedlings are becoming increasingly popular as peach understocks.

Nematode Resistant Varieties

Where nematodes are serious on peach roots, seedlings of such varieties as Shalil and Yunnan have been used recently. Although these varieties are not always completely free from nematodes, they seem to be the best varieties of which seeds are now available. Efforts are being made to find stocks that are still more resistant to nematodes and will produce vigorous orchard trees and also be satisfactory seedlings in the nursery.

Cherimoya Varieties in California

By C. A. Schroeder

"Deliciousness itself" is Mark Twain's description of the cherimoya. This attractive fruit, which claims the highlands of Peru as its home, is now found more or less generally in tropical and subtropical regions. It has been known in California for more than seventy years, but only within the past decade or two has it received attention which may result in its culture as a small commercial industry in the state.

The cherimoya (*Annona cherimola*) is known under other names such as custard apple, annona and chirimoyer. Botanically it is related to such fruits as the sugar-apple (*A. squamosa*), sour-sop (*A. muricata*), both tropical fruits, and to the pawpaw (*Asimina triloba*) of eastern United States.

Tree and Fruit Characteristics

The tree is a tender semideciduous subtropical which will withstand little frost and is intolerant to strong winds or extremely low atmospheric humidity. Numerous areas in southern California, however, provide suitable conditions for its growth.

The fruit is short conical to chordate in form. It ranges in size from three to eight inches in length and in weight from three-quarters to one and one-half

pounds. The fruit surface is characterized by spirally arranged areoles which may be slightly depressed (finger-printed), terminated by a rather abrupt point (mammillate) or of intermediate character. Tht flesh is creamy white and of custard-like consistency containing many black-brown seeds about the size of large coffee beans. The flavor is generally described as a blend of pineapple and banana.

Although the cherimoya is now widespread in California as a dooryard tree, recently several small commercial plantings have been made. The reason for the rather irregular bearing and production of poorly shaped fruits which has prevailed heretofore is now known to be inadequate pollination. The flowers are normally not pollinated by insects in California. Hence hand pollination has been found to be a practical and economical method of assuring fruit set and producing larger fruits of better shape.

The principal outlets for the crop are local fruit and specialty fruit markets in the larger cities. Fairly regular shipments are made to larger markets within the state and to midwestern and eastern cities. The potential fresh fruit demand is not known and its possibilities for frozen fruit products have not been explored.

Important Varieties

The cherimoya varieties now in California have originated locally by seedling selection. Breeding work is in progress from which may result new self-fruitful varieties with less seed and greater hardiness to frost.

The following varieties appear at present to be most valuable to the industry:

BAYS — Fruit short and rounded, medium in size with a fingerprinted surface. It ripens early and possesses excellent quality. It is among the best varieties.

BOOTH — Fruit short-conical, with a blunt point and fingerprinted surface. The color is dark green and quality good. This variety has been grown for many years and is one of the good late varieties. It is somewhat resistant to cold.

CARTER — Fruit long conical in shape with a rounded apex. It is characterized by a smooth to faintly fingerprinted surface and a rather tough skin which is somewhat russetted. It has good shipping qualities but the flavor is only fair. Its season is very late. The plant is rather hardy and is characterized by a

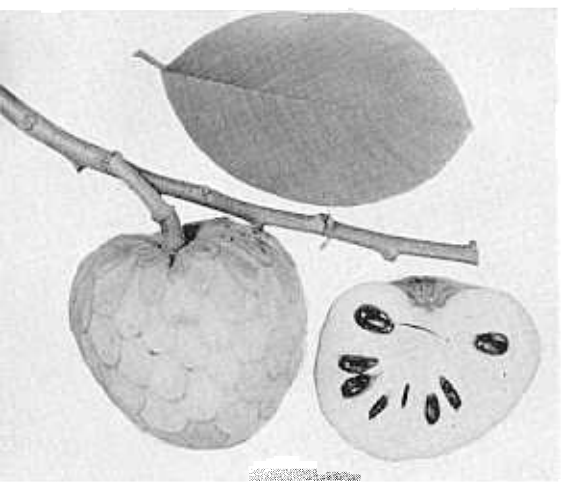
Commercial pack of cherimoya.

twisting or undulating of the leaf margin.

CHAFFEY—Fruit short and rounded, of medium size with a fingerprinted surface and late in season. It has excellent quality and good production even without hand pollination. Chaffey is one of the newer varieties which shows potentialities as a commercial fruit.

DELICIOSA — The short conical fruit is distinguished by the prominent tubercles which mark its surface. The skin is delicate and faintly pubescent. It is a mid to late season, fair quality fruit which is being supplanted by better types. Its flavor is variable and it does not handle well. This variety is most cold resistant of all.

McPHERSON — A long conical fruit with a fingerprinted surface and occasional tubercles near the basal end. This is a midseason fruit of high quality and good bearing behavior.



Chaffey is a cherimoya of excellent quality which shows potentialities as a commercial fruit.

The Deliciosa variety of cherimoya produces fruit of only fair quality but is one of the most cold resistant.

OTT — The fruit is long conical to chordate in shape with a very slightly tuberculate surface. The flavor is distinctive and outstanding and the fruit ships well. This is the only cherimoya variety which has been patented (Plant Patent No. 656).

WHALEY — The fruit is long conical, but with well developed, rather broad basal portion. The surface is faintly and irregularly tuberculate. The season is late. Flavor is good to excellent. There is a thin membrane around each seed which sometimes does not separate as easily as in other varieties. This variety produces well in most areas and is grown in commercial quantities.

WHITE — Fruit is short conical with rounded apex. The surface is faintly mammillate to umbonate with the areoles

well marked. The flavor is good and skin medium thick. It is a midseason variety which in some sections bears poorly.

Other varieties which have been planted on occasion, but which have proved to be somewhat inferior in some respects are Golden Russet, Loma, Mira Vista, Sallmon, and Ryerson.

The McIntosh Apple

By H. A. Rollins
University of Connecticut

The McIntosh apple, is the number one commercial variety in New England because of its superior quality and appearance, its annual bearing habit, and winter hardiness. This variety was a chance seedling found by the late John McIntosh at Dundela, Ontario, Canada, nearly 150 years ago. Few fruit varieties have meant as much to an area as the McIntosh apple has to the Northeast.

It was already gaining in popularity as a commercial variety in New England some forty years ago at the time that cold winters ruined many Baldwin orchards. Since about 1920 there has been rather heavy planting of this variety in the New England area and to some extent in other sections throughout the Northeast where the cool climate appears to be most favorable for it.

Origin of McIntosh

It is important that we know more of the origin of a variety as important as the McIntosh apple. Mr. John McIntosh, born near Schenectady, New York, is credited with finding the chance apple seedling when clearing a section of forest for a new home in Dundela, Dundas County, Ontario, Canada, about 1800.

He transplanted a few apple trees from the border of the clearings to his fenced-in garden and there nursed them along with care. The fruit from one of these trees was much better than the rest. This tree was first called the "Granny apple tree" for John's wife, Granny McIntosh. It was later named McIntosh in honor of John McIntosh, who preserved the seedling.

Allen McIntosh, son of John McIntosh, was born in 1815. It was not until some years later when Mrs. Allen McIntosh learned the art of grafting and budding that nursery trees were propagated from this original seedling McIntosh and distributed for planting. The original tree attracted a great deal of attention locally and a number of McIntosh orchards were planted. This fruit was outstanding be-