Hunt Institute for Botanical Documentation
5th Floor, Hunt Library
Carnegie Mellon University
4909 Frew Street
Pittsburgh, PA 15213-3890
Contact: Archives
Telephone: 412-268-2434
Email: huntinst@andrew.cmu.edu
Web site: www.huntbotanical.org

ACROCOMIA VINIFERA Oerst.

Coyol in Spanish (from the Nahuatl coyolli, according to Pittier); mapin in Kekchi (Alta Verapaz)

A characteristic palm of the lowlands, with a tall, columnar stem and graceful, arching, pinnate ~~xxxxx~~ foliage. Its fruits, which are produced on large pendant racemes, are round, and about an inch an a half in diameter. They ~~xxxxxxxxx xxxxxxxxxxxxxxxxxx~~ are said to be eaten in times of scarcity. ~~hence the plant must be listed among Guatemalan fruits, but~~

ANANAS ANANAS (L) Karst.

Piña in Spanish; chop in Kekchi and Pokonchi (Alta Verapaz); chop in Cakchikel (San Antonio a. c., Tecpan)

From the seacoast up to elevations of 4000 or 4500 feet the pineapple is fairly common. In no part of Guatemala is it grown commercially on an extensive scale, but there is sufficient production to supply local markets, ~~and those of the capital.~~

~~There are~~ two varieties ~~generally grown~~ are most commonly seen; one of these is called piña de azucar, or sugar pineapple; the other has no distinguishing name. In some parts of the country the piña de azucar is by far the commonest; in others, ~~both varieties these seems to be little preference for one or the other, both being~~ the two varieties are grown to about the same extent. The piña de azucar is much the best for eating ~~in the~~ as a fresh fruit. ~~state~~. It is ~~commonly~~ usually a small or medium sized ~~fruit,~~ broadly oblong-oval in outline, weighing two to three pounds. Both ~~base and apex of the fruit~~ ends of the fruit are flattened; the surface is light yellow, comparatively smooth, the eyes large, flattened, marked off by lines rather deeply incised. The crown is long and slender, the leaves narrow, with the margins smooth. The flesh is tender, white, ~~very~~ juicy, sweet, of very pleasant flavor. The keeping qualities of this variety are not good, ~~hence it is not shipped such distances as the other~~.

The second variety is called simply piña. It is a fruit of approximately the same size as the piña de azucar, oblong in outline, rather slender ~~than the piña de azucar~~, and usually tapering toward the upper end. ~~The base is flattened, the apex rounded;~~ The surface is dull orange in color, rough, the eyes small, protruding conspicuously. The crown is short, ~~slender at the base, and~~ broadly spreading toward the top, the leaves short, broad toward the base, sharply serrate. The flesh is somewhat woody in texture, of translucent orange color, juicy, but rather nondescript in flavor, ~~lacking in sweetness.~~ The variety appears to have excellent keeping and shipping qualities.

Other forms than those described are seen occasionally; an acid, light-yellow fleshed one, very similar to the Red Spanish of Florida, is the most important.

The pineapple is a favorite with the Indians, who commonly plant it in their gardens and dooryards. ~~and is often seen growing in their gardens and around their huts.~~ It has probably been known to them since ancient times.

Journal 1919-67

ANACARDIUM OCCIDENTALE L.

Jocote marañon in Spanish (jocote is the common name of the allied Spondias mombin)

Not so abundant in Guatemala as in many other tropical regions, but fairly common in dooryards along the west coast, Occasional in the lowlands of the eastern part of the country. It is rarely grown in the highlands, even at elevations as low as 3000 feet, at which altitude it should certainly succeed.

The cashew, as it is called in English, is a small spreading tree allied to the mango. The leaves are oblong-obovate, rather stiff, three to six inches in length; the flowers are small, pinkish, produced in large panicles, The kidney-shaped fruit, about an inch in length, is borne at the lower end of a swollen, fleshy fruit-stalk; the latter is yellow or red in color, and filled with aromatic juice. The fruit-stalk, commonly thought to be the fruit, is eaten out of hand or made into refreshing drinks; the fruit proper yields a large kernel which is excellent when roasted.

Sometimes seen in the markets of Guatemala city. The principal source of supply seems to be the region around Escuintla.

ANNONA CHERIMOLA Mill.

Anona in Spanish; pak in Cakchikel (Sacatepequez); pap in Pokonchi, pap and tzumuy in Kekchi (Alta Verapaz); ~~pak in Cakchikel (Tecpan)~~

~~One of the finest fruits of the Guatemalan highlands, if not the most delicious of all. It is very abundant in the dryer regions, such as Antigua, and comparatively scarce in the ~~xxx~~ moister parts ~~like~~ of the Alta Verapaz. ~~xx~~ Trees spring up along the roadsides~~

One of the finest fruits of the Guatemalan highlands, if not the most delicious of all. Abundant in many of the dryer regions, such as Antigua; comparatively rare in the very wet portions of the Alta Verapaz. It is rarely seen below 3000 feet, and attains its greatest perfection when grown between 4000 and 6000. Its upper limit of cultivation is slightly below that of the avocado and considerably below that of the matasano (Casimiroa edulis); in general, it was found to be ~~may be considered to be~~ between 7500 and 8000 feet.

The great drawback to anona culture in Guatemala is the presence of an insect whose larvae infest many ~~the majority~~ of the fruits, ~~seen in the markets.~~ After working ~~living~~ in the seeds, they ~~larvae~~ tunnel out thru the surface of the fruit, leaving a small round hole; ~~xxxxxxxxxxx~~ on opening a fruit which shows these holes ~~in the surface~~ (~~xxxx~~ fruits in the market are usually in this condition) the ~~xxxx~~ pulp around the seeds

is found to be discolored with granular brown castings, and the seed itself has largely been destroyed. Sometimes only a small portion of the fruit ~~has been~~ is attacked, and the remainder is eatable. In some instances nearly every seed ~~has been~~ is infested, and the fruit becomes worthless.

The anona, usually known in English speaking countries as cherimoya, is a small ~~generally~~ ~~spreading~~ tree with light green ~~dark~~ or elliptic leaves three to six inches long, ~~light green in color~~. The flowers are inconspicuous; the fruits, which ripen in Guatemala from November to February, are heartshaped or conical in form, one to five pounds in weight, dull green in color, and either smooth on the surface or furnished with ~~short~~ protuberances. The flesh is white, melting, of custard like consistency, sweet but at the same time agreeably acid so as not to cloy the palate, of rich, aromatic flavor suggesting ~~a~~ the pineapple.

After being picked from the tree, anonas do not become soft and ready for eating inside of three or four days. They can be handled thereafter without danger of bruising, and

it is common to see them coming into the Guatemala City from towns 20 to 40 miles distant, tied in nets upon the backs of Indians or pack animals.

The trees do not bear heavily, ~~of~~, ~~of fruit~~, in most cases, hence ~~the~~ anonas is brought a higher price in the market than many fruits which are produced in greater abundance. They are eaten while fresh, being esteemed as a dessert fruit. No methods of preparing or cooking them ~~fruit~~ were observed.

Anona trees spring up along many of the roads thru the highlands from seeds dropped by passing travelers. In a climate such as that of Antigua the tree seems perfectly at home. Just why it does not succeed in the hot, moist lowlands can not be stated. In dooryards of the highlands anona trees are nearly as common as avocados, but

unlike the latter they ~~are~~ very rarely found in coffee plantations, ~~except very rarely~~. Many ~~of the~~ trees do not bear more than a dozen good fruits annually. Some are more productive, as high as 115 fruits having been counted on one tree of comparatively small size. The fruiting habits of this and other members of the genus annona require much investigation before they will be thoroly understood.

ANNONA DIVERSIFOLIA Safford

Anona blanca in Spanish.

One of the most interesting and little known of the Central American annonas, recently described by Safford from material collected in Mexico and El Salvador*. In Guatemala it is fairly well known south of the Motagua river below El Rancho. Trees were seen in the vicinity of Chiquimula and along the Honduras frontier. The fruits are sold in the market at Chiquimula during August and September, and were seen on one occasion at the railway station of Chile, not more than 30

* Journal Wash. Acad. Sc., II, 5. March 5 1912.

miles from Guatemala City. The species apparently belongs to the lowlands, no trees being encountered above 2000 feet. In general habit it resembles Annona reticulata, the the foliage is less dense, with the leaves generally smaller. The leaf blades are oblong-elliptic, up to 5 ins long by 2 ins broad, light green above and glaucous beneath. Large, orbicular leaf like bracts are found at the base of the flowering branches, "a peculiarity found in no other Annona thus far known, except A. macrophyllata Donnell Smith" (Safford). The fruits seen near Chiquimula strongly resembled those of A. reticulata, being heart-shaped, smooth on the surface, with the carpellary areas defined by slightly incised lines. As on the

Cherimoya, however there seems to be much variation in the character of the surface, some varieties having protuberances of greater or less prominence. The entire fruit is covered with a heavy whitish bloom, whence probably the name "anona blanca" (white anona). The flesh of the wild fruit has not been seen by me, but is described as pinkish, slightly more granular than that of the cherimoya and not quite so rich in flavor. It is considered a very good fruit, however, and may well be termed a tropical kind of the subtropical Cherimoya.

ANNONA MURICATA L.

Guanábo in Spanish;

~~A species~~ not ~~very~~ common in Guatemala, ~~and limited to the lowlands.~~ Occasionally seen in the vicinity of Escuintla, Mazatenango, and other towns of the Pacific coast ~~it is seasonally~~ where the fruits are shipped ~~from the~~ to the capital. In the Verapaz it is rare; in the Motagua valley it is not abundant.

The soursop, as it is known in English-speaking countries, is a small, usually slender tree with glossy deep green foliage, easily distinguished from that of the anone or cherimoya. The flowers are large for this genus, the fruits also, specimens weighing 5 or 6 pounds being common. In shape the fruit is oblong, commonly more or less malformed. ~~due to the unequal development of the carpels composing it~~

The surface is deep green, covered with soft thick spines. The flesh is white, cottony in texture, filled with rich subacid juice which makes one of the most delicious helados or sorbets known to the tropical world. A preserve is also made from this fruit, ~~commercially~~, its manufacture being carried on commercially in a small way at Guatemala City.

The tree was not seen above 4000 feet and only on one or two instances above 3000. It is not well known to most of the Guatemalan Indians, and must be considered of comparatively little importance. It is found only in dooryards, and like its congener the cherimoya it usually bears very scantily. The glrous character of the pulp makes it somewhat objectionable for eating out of hand, ~~but~~ Aside from the uses already mentioned it serves to make a refreshing drink.

ACROCOMIA VINIFERA Oerst.

Coyol in Spanish (from the Nahuatl coyolli, according to Pittier); map in Kekchi (Alta Verapaz).

A characteristic palm of the lowlands, with a tall, columnar stem and graceful, arching, pinnate leaves. Its fruits, which are produced on large pendant racemes, are round, about an inch and a half in diameter. They are said to be eaten in times of scarcity.

ANANAS SATIVUS Schult. f.

Pina in Spanish; chop in Kekchi and Pokonchi (Alta Verapaz); chop in Cakchikel (San Antonio A.C., Tecpan).

From the level of the sea up to elevations of 4000 or 4500 feet the pineapple is fairly common. In no part of Guatemala is it grown commercially on an extensive scale, however.

Two varieties are seen in the eastern part of the country; one of these is called pina de asucar, the other has no distinguishing name. The first named is much the best for dessert use. It is small to medium-sized, broadly oblong-oval in outline, and weighs two to three pounds. Both ends of the fruit are flattened; the surface is light yellow, comparatively smooth, the eyes large, flattened, marked by lines rather than by deep incisions. The crown is long and slender, the leaves narrow with smooth margins. The flesh is tender, white, juicy, sweet, of very pleasant aromatic flavor. The keeping and shipping qualities of the variety are not good.

The second sort, called simply pina, is a fruit of approximately the same size as the azucar variety, oblong in outline, rather slender, and usually tapering toward the upper end. The surface is dull orange in color, rough, the eyes small, protruding conspicuously. The crown is short, broadly spreading toward the top, the leaves short, broad toward the base, sharply serrate. The flesh is somewhat

woody in texture, of translucent orange color, and rather nondescript in flavor. The variety has excellent keeping and shipping qualities.

The pineapple of Palin, produced abundantly in that region and offered to passengers on the trains which pass from San Jose de Guatemala to Guatemala City, is probably a superior strain of the last-described. It is perhaps more highly flavored than Red Spanish, and is of fair quality.

This fruit is a favorite with the Indians, who commonly plant it in their gardens and dooryards. Probably it has been known to them since ancient times.

ANACARDIUM OCCIDENTALE L.

Jocote maranon in Spanish (jocote is the common name of the allied Spondias mombin L.)

Not so abundant in Guatemala as in many other tropical countries, but fairly common in dooryards along the west coast. Occasional in the lowlands of the eastern region. It is rarely seen in the Highlands, even at elevations as low as 3000 feet.

The cashew, as it is called in English, is a small spreading tree allied to the mango. The leaves are oblong-obovate, rather stiff, three to six inches in length; the flowers are small, pinkish, produced in large panicles. The kidney-shaped fruit (cashew-nut), about an inch long, is borne at the lower end of a swollen, fleshy fruit-stalk (cashew-apple); the latter is filled with aromatic juice, and is eaten out of hand or made into refreshing drinks; the fruit proper yields a large kernel which is excellent when roasted.

Occasionally this fruit is offered in the market of Guetamala City. The principal source of supply seems to be the region about Escuintla.

ANNONA DIVERSIFOLIA Safford

Anona blanca in Spanish; papauce At Tapachula, Chiapas, Mexico and along the northwestern border of Guatemala.

Perhaps the most interesting species of Annona cultivated in Central America. In Guatemala it is fairly well known south of the Motagua river, below El Rancho. Trees were seen in the vicinity of Chiquimula, and along the Honduras frontier. The fruits are sold in the market of Chiquimula during August and September, and on one occasion were seen at the railway station of Chile, not more than 30 miles from Guatemala City. The tree is confined to the lowlands, none being encountered at elevations greater than 2000 feet.

The ilama, as this species has been termed in Mexico and by certain American writers, is a small tree, strongly resembling Annona squamosa in appearance. The leaves are elliptic to oblanceolate in form, about four inches long, and the flowers are maroon-colored. The fruits are conical, oval, or round, and weigh as much as a pound and a half when well-grown. They are slightly rough on the surface, whitish green or sometimes reddish on one side; the flesh is white, like that of the cherimoya in texture and flavor.

It seems worthy of note that this excellent fruit is not generally cultivated in the Guatemalan lowlands. It merits extensive planting, for it may well be termed the cherimoya of the tropical lowlands.

ANNONA CHERIMOLA Mill.

Anona in Spanish; pak in Cakchikel (Sacatepequez); pap in Pokonchi, pap and tzumuy in Kekchi (Alta Verapaz).

One of the finest fruits of the Guatemalan highlands, if not the most delicious of all. Abundant in many of the dryer regions, such as the valley of Antigua; comparatively rare in the wettest portions of the Alta Verapaz. It is rarely seen at elevations lower than 3000 feet, and attains its greatest perfection when grown in a dry region lying between 4000 and 6000 feet in elevation. Its upper limit of cultivation, at 7500 to 8000 feet, is slightly below that of the avocado, and considerably lower than that of the matasano (Casimiroa edulis).

The great drawback to anona culture in Guatemala is the presence of an insect whose larvae infest many of the fruits. After working in the seeds, these larvae tunnel out through the surface of the fruit, leaving a small round hole. On opening a fruit which shows some of these latter (those sold in the markets are usually in this condition), the pulp around the seeds is found to be discolored with granular brown castings, and the seeds themselves have largely been destroyed. Sometimes only a small portion of the fruit is attacked, and the remainder is eatable; in some instances nearly seed is eaten and the fruit becomes worthless.

The anona, usually known in English-speaking countries

as cherimoya, is a small tree with light green ovate or elliptic leaves three to six inches long. The flowers are inconspicuous: the fruits, which ripen from November to February in Guatemala, are heart-shaped or conical in form, one to five pounds in weight, dull green in color, and either smooth on the surface or furnished with short protuberances. The flesh is white, melting, of custard-like consistency, sweet but at the same time not cloying to the palate. The flavor suggests that of the pineapple and the banana.

After being cut from the tree, anonas do not become soft and ready for eating within three or four days. They can be handled, therefore, without danger of bruising, and it is common to see them coming into Guatemala City from towns 30 to 40 miles distant, tied in nets upon the backs of Indians and pack-animals.

The trees do not bear heavily, in most instances, hence anonas fetch a higher price in the markets than many other fruits. They are eaten out of hand, being esteemed particularly as a dessert fruit. No method of preparing or cooking them was observed.

Anona trees spring up along many of the roads through the highlands, from seeds dropped by passing travelers. In dooryards and gardens the tree is nearly as common as the avocado, with the exception of the Verapaz, where it is rare.

ANNONA MURICATA L.

Guanaba in Spanish (properly guanabana)

Not common in Guatemala. Occasionally seen in the vicinity of Escuintla, Mazatenango, and other towns of the Pacific coast, whence the fruits are shipped to Guatemala City. In the Verapaz it is rare, as also in the Motagua valley.

The soursop, as it is known in English-speaking countries, is a small, usually slender tree with glossy deep green foliage. The flowers are large, orange-colored within. The fruits are oblong, commonly more or less malformed, and weigh from one to five or six pounds. The surface is deep green, and covered with soft spines; the flesh white, cottony in texture, filled with rich subacid juice which makes one of the most delicious helados or sherbets known to the tropical world.

I have not seen the tree in Guatemala at elevations greater than 4000 feet, and only above 3000 in one or two instances. It is not well known to most of the Guatemalan Indians, and must be considered a fruit of little economic importance. It is seen usually in dooryards, and like its congener the cherimoya it bears scantily.

ANNONA RETICULATA L.

Anona in Spanish; tzumuy in Kekchi and Pokonchi (Alta Verapaz)

The custardapple of the British West Indies. Very common in southeastern Guatemala, where it is wild along streams and watercourses. Throughout the lowlands of both coasts it is frequent in dooryards. The upper limit of its cultivation seems to be about 3500 feet.

It may be distinguished from "the Cherimoya" by its long, narrow, glabrous leaves," and from Annona squamosa "by its solid compact fruit, as well as its larger leaves" (W. E. Safford). The tree is small to medium sized, bears somewhat more abundantly than the Cherimoya, and seems capable of withstanding prolonged droughts. The fruit is heart

shaped, round, or irregular, nearly smooth and when ripe brownish or reddish green in color. The flesh is ~~rather~~ rather gritty in texture, white, sweet, inferior in ~~quality~~ flavor to that of the cherimoya.

This species is held in much less esteem than the cherimoya, ~~and~~ its fruits, which are not commonly offered in the markets, are eaten only while fresh, no methods of cooking or preserving them ~~being~~ having been observed.

ANNONA PURPUREA Moc. & Sesse.

Soncoya, suncuya and chancuya in Spanish and various Indian dialects.

A tree common in the lowlands of both coasts, sometimes in cultivation, but more commonly wild. Its foliage is very large, the leaves ~~[illegible]~~ up to a foot in length. The fruits are spherical, six inches or more in diameter, covered with short thick horken spines. The skin is about a quarter of an inch thick, somewhat corky in texture, the flesh bright orange color, juicy, containing numerous seeds larger than those of the Cherimoya. The flavor is pleasant, strongly suggesting that of the northern papaw (Asimina triloba).

There is a widespread belief that this fruit is not very wholesome: it is even said to produce fever. Nevertheless it appears in the markets of many lowland

towns and is eaten by the natives.

~~The trees bear very few fruits.~~ They

In no part of Guatemala was this species found growing above 2500 feet. It is common along streams and watercourses between Zacapa and Copán, where it becomes a shapely small tree of attractive appearance, but rarely produces more than a few fruits. ~~While interesting, the~~ ~~fruit cannot be considered decidedly inferior in quality to the~~ ~~Chirimoya or other fruits of the same genus~~

The latter are decidedly inferior in quality to those of several other Annonas.

ANNONA SCLERODERMA Safford

Pox-te in Kekchi (Alta Verapaz).

A rare and little-known annona seen occasionally in the Alta Verapaz, where it occurs as a wild tree in the forest. Its fruits are remarkable for their thick, hard outer covering, quite distinct from that of nearly all other species.

The pox-te is a small, vigorous tree, with oblong, abruptly acuminate leaves 5 to 9 inches in length, coriaceous and glabrous when mature. The fruit is oblate in outline, the surface divided into angular areoles by raised ridges. The ripe fruit has ~~not been seen by me, but is described as having~~ white, juicy pulp of pleasant subacid flavor.

Rev Journal 1919

ANNONA SQUAMOSA L.

Very rare in Guatemala; a few trees were seen along the banks of the rio Copán, not far from Zacapa, but nowhere does the species appear to be cultivated at all commonly. No native names for it could be found.

The sugarapple, a small tree 15-20 feet high, has leaves which resemble those of Annona reticulata but are smaller, lanceolate or oblong lanceolate in outline. The fruit is globose or heartshaped, with the carpels loosely adhering to each other. The pulp is white, sweet, of rich, very pleasant flavor, this species perhaps ranking next to the Chirimoya in quality. Confined to the lowlands.

ANNONA TESTUDINEA Safford

Anona del monte in Spanish (Honduras)

A rare tree closely allied to the pox-te of Alta Verapaz (Annona scleroderma), and with it constituting a section, Chelonocarpus, of the genus Annona, recently established by W. E. Safford.

This tree was not observed in Guatemala, but fruits were seen in the market at El Rancho, in eastern Guatemala, indicating that the tree must occur somewhere in that region. Safford describes it as 40 to 50 feet high, with oblong or oblong elliptic leaves, acuminate at the apex, 10 to 14 inches in length, coriaceous in texture. The fruit is round or somewhat oval in outline, with a thick shell which is divided on the surface into angular areoles after the fashion of that of A. scleroderma. The pulp is white, very juicy, in flavor strongly resembling that of the cherimoya, and nearly as good. The seeds, however, are rather numerous and the pulp less abundant than in the cherimoya.

ARTOCARPUS COMMUNIS Forst. (Char.)

Fruta de pan or masa pan in Spanish.

This well-known Polynesian tree is becoming common in the lowlands of both coasts, where it is planted ~~commonly~~ about ~~railway stations in Southwestern Guatemala~~. Its fruit has not yet become, however, an important food among Guatemalans. Perhaps its failure to do so can be traced to the presence of another starchy fruit, — the banana — as is said to have been the case in Jamaica.

The bread fruit (fruta de pan) is a large tree of unusual value as an ornamental, having immense, deeply lobed leaves of deep, rich green color. The large, round or oval fruit, the size of a small melon, contains a white, mealy pulp having, when cooked, something of the taste of sweet potatoes

and chestnuts. It is ordinarily used as a vegetable. ~~The trees in~~

Numerous trees have been planted in the lower Motagua valley around the buildings of the United Fruit Company. A few large specimens are to be seen at Livingston.

BLIGHIA SAPIDA Koen.

Seso vegetal in Spanish; akee in English (among Jamaica negros of banana plantations of lower Motagua valley)

Very few trees of this African species were seen in Guatemala, its culture being confined, so far as observed, to the region occupied by the United Fruit Company. The importation of many Jamaica negros to work the banana plantations is probably responsible for its introduction, ~~of the tree to the region mentioned~~. Thus it may likelly have been planted previously in a few ~~places~~ spots.

The akee sometimes becomes a very large tree. It has pennately compound leaves, and produces its fruits in long-stemmed clusters. ~~sometimes singly~~.

When ripe the fruits divide along three sutures, exposing three shining seeds half an inch in diameter, each borne upon a fleshy mass of aril resembling a miniature brain in appearance. The aril has the texture of soft cheese, and is excellent when fried or stewed with salt fish. If eaten when unripe or burned it is considered highly poisonous. The Government of Jamaica has issued a warning to the effect that the greatest care should be exercised in selecting ~~fruits~~ akees for eating, and that the water in which the fruits are boiled should be thrown away.

BROMELIA PINGUIN L.

Piñuela in Spanish

A plant greatly resembling the pineapple in appearance, but larger and coarser. It is much used in the warmer parts of Guatemala to form hedges. The small, acid fruits serve to make refreshing drinks, but are not often employed for this or any other purpose.

BYRSONIMA CRASSIFOLIA HBK.

Nance in Spanish, as well as in several Indian dialects; chi in Ketchi (Alta Verapaz) tapal in Cakchikel (San Antonio A.C., Tecpan) and in Pokonchi (San Cristóbal Verapaz?)

One of the common fruits in many parts of Guatemala, ~~especially in regions having a well-marked and severe dry season.~~ and a favorite among the Indians. To Europeans, however, it appears of little merit, its flavor being rather acrid.

It is often ~~commonly~~ seen in gardens, especially in villages along the west coast. In the wild state it is abundant in many regions, often frequenting dry, stony hillsides. ~~and other situations unfavorable to the growth of many trees.~~ It is erect in habit, ~~and~~ reaching 35 feet in height when grown under ~~fxx~~ cultivation. The leaves are obovate-lanceolate to elliptic, acute, 3 to 4 inches long, tawny pubescent beneath. The ~~flowersxxxx~~ small brownish yellow flowers are borne upon erect, pubescent racemes. The fruits are ~~inxxxx~~ the size of cherries, yellow in color, with a thin skin and rather mealy pulp of ~~xxxxxxxxxxxx~~ somewhat strong, acid flavor. The seed is the size of a cherry stone.

The nance is found growing at all elevations from sea level to 5000 feet or above. ~~It xxxx produces xxxxxxx its small fruits in great abundance.~~ The Indians ~~commonly~~ generally eat

the fruits, which are produced in abundance, while fresh; but they are ~~xxxx~~ also ~~xxxxxxxxxx~~ cooked in various ways. Large baskets of nances are ~~nearly always seen~~ a frequent sight in the markets. ~~during the long period of ripening.~~

Calocarpum mammosum Pierre

~~Achradelpha~~

~~LUCUMA MAMMOSA Gaertn.~~

Zapote in Spanish; saltul in Kekchi (Alta Verapaz); saltulul in Pokonchi (Alta Verapaz); tulul (same as Calocarpum viride) in Cakchikel (San Antonio A.C., Tecpan)

One of the most important fruits of the lowlands, well known to the Indians since time immemorial. It is wild in many sections, particularly in the Alta Verapaz. Between ~~1000 and~~ sea level and 2000 feet it seems to be most abundant; at 3000 feet it is still quite common, at least in the Verapaz; while at 4000 feet is has commenced to disappear and is rarely seen. It is generally believe that it will not succeed in Guatemala City (5000 feet), but a tree on the porperty of William J. Devlin has attained ~~xxxxx35x~~ a height of about 35 feet and produces excellent fruits. At this elevation the tree grows ~~xxxx~~ slowly, and the fruits require a long time to reach maturity.

~~In the lowlands~~

In the lowlands the zapote is a large forest tree, often 60 feet in height, with a ~~xxxx~~ thick trunk and stout branches. The Indians, when clearing land for coffee plantations, usually leave the zapote trees they encounter, for the sake of ~~xxxxxxxx~~ their valuable fruits. The foliage is abundant, and light green in color the leaves, clustered toward the ends of the branchlets, obovate to oblanceolate in outline, broadest toward the top, and four to ten inches long. The flowers are

very small, produced in great numbers upon the stout branchlets. The fruit is elliptical in form, commonly three to six inches in length but sometimes larger, ~~with~~ The skin is thick and woody, externally russet in color and somewhat scurfy. The flesh is salmon red, ~~resembling in texture the flesh of a boiled squash~~, ~~and~~ finely granular in texture ~~rather granular~~, and of sweet, almost cloying flavor, ~~sometimes suggesting~~ in inferior specimens the pumpkin. The seed is large, shining except on the ventral surface, and easily removed from the fruit.

The indians commonly eat the zapote ~~fruit~~ out of hand. It is occasionally made into a rich preserve, however, and can be used in a few other ways. It is slightly inferior in quality to the injerto or green sapote, ~~but since the~~ the latter is grown in the higlands and the zapote in the lowlands, hence the two do not compete in many markets.

The seed of the zapote is an article of commerce in the verapaz and in western Guatemala. The large kernel is removed, roasted, and used to mix with cacao in the preparation of chocolate. According to some of the indians, it imparts flavor to the cholate; according to others, it is done to increase the bulk of the latter. In view of the high price of cacao beans, it seems most probable that the zapote seed would be used as an adulterant, rather than for the flavor which it gives to the chcolate.

The fruit, most widely known under its Spanish name, injerto, is especially esteemed by the Kekchi and Pokomchi Indians of the Verapaz. It is decidedly superior in quality to that of the zapote, ~~being~~ the flesh being of finer texture and more delicate flavor. Good specimens are nearly five inches long, turbinate to elliptic in outline, pale yellowish or brownish green when ripe. The skin is very thin and tender, the flesh pale red-brown, melting in texture, sweet, somewhat juicy. The seeds are commonly one or two, elliptic, resembling those of the zapote but smaller.

The tree is very productive, but has the disadvantage of not coming into bearing earlier than eight or ten years from the seed. It ~~xxxx~~ is adapted to cooler climates than the zapote, probably withstanding slight frosts without injury. It ~~xxxxxxxxxxxx~~ grows in dooryards and around cultivated fields, seeming to be equally successful on clay and sandy loam. The fruits are commonly sold in the markets of Guatemalan towns, nearly always being in demand and fetching a relatively high price. The season commences in October or November and continues for several months. When picked from the tree the fruits are quite hard and can be carried long distances without injury. They are ripened in the house, and when soft must be handled carefully as the skin is easily broken.

Usually the fruit is eaten while fresh but in some parts of Guatemala a rich preserve is made from it.

Calocarpum viride Pittier

~~ACHRADELPHA VIRIDIS O.F.Cook~~ (Calocarpum viride Pittier)

Zapote in Spanish; rastul in Kekchi (Alta Verapaz); rastulul in Pokomchi (Alta Verapaz). tulul in Cakchikel (San Antonio A.C)

A tall tree common in certain parts of the Guatemalan highlands. In habit general appearance it greatly resembles the zapote, ~~with which it is closely allied, but the fruit is quite distinct in character.~~ Botanically it differentiated from the latter (Achradelpha mammosa) "by the smaller leaves, downy and white beneath, the smaller and differently shaped sepals, the sthorter staminodes and stamens, the latter with broadly ovate anthers, and above all by the comparatively small, thin and green-skinned fruit and the smaller, ovate seed.*"

It is seen most abundantly in the Alta Verapaz, at elevations of 4000 to 6000 feet. In Central Guatemala it occurs commonly in the vicinity of Antigua, and in the western portion of the republic it is seen in some of the higlands towns. It was not observed in eastern Guatemala south of the Sierra de las Minas, but its absence in this region may be attributed to the lack of sufficient elevation. Unlike its congener, the zapote, this species is not grown in the lowlands. The lower limit of its cultivation appears to be about 3000 feet, the upper limit below 6000 and about 7000.

*Pittier, in Contributions from the U.S.Natl. Herbarium, 18, pt 2, p.85. 1914.

CARICA PAPAYA L.

Papaya in Spanish

A common fruit in the lowlands of both coasts. It is rarely seen above 4000 feet.

The varieties of the papaya grown in Guatemala are in general rather inferior, though large fruits of good quality are occasionally seen. ~~In particular~~ In the vicinity of Escuintla a peculiar form ~~with fruits~~ is cultivated, the fruits having flesh of deep salmon red color. This variety and others are shipped from Escuintla to the markets of Guatemala City, where ~~they bring~~ a good price is obtained for them.

The papaya is a gigantic herb, with ~~deeply lobed~~ large, deeply lobed leaves borne upon long stiff petioles, ~~and produced only at the apex of the stem~~ toward the apex of the stem, which is commonly unbranched, but occasionally divides into several secondary stems. The plant is usually monoecious, pistillate and staminate flowers being produced upon different plants. ~~This~~ Irregularities in the distribution of the sexes are frequent, hermaphroditic plants ~~being occasional~~ occurring. In Guatemala only monoecious plants were seen. The fruits are the size of a muskmelon, round to oblong in form, usually pointed at the tip. When ripe they are deep yellow in color, with thick ~~flesh within the~~ tender flesh of sweet, characteristic flavor, and numerous small black seeds adhering to the walls of the seed cavity. While most commonly eaten as a breakfast fruit or as dessert after the noonday and evening meals, the papaya is utilised in Guatemala City in the

manufacture of preserves and marmalade.

CASIMIROA EDULIS LaLLave & Lex.

Matasano in Spanish; ajachel in Cakchikel (San Antonio A.C., Tecpan)

One of the characteristic fruits of the Guatemalan highlands, ascending to greater altitudes than ~~th any other of the subtropical~~ the avocado. The highest point at which it was found was San Francisco el Alto (9000 feet); it is occasionally seen as low as 2000 feet or even less, but it is most abundant from 4000 to 7000. In the Alta Verapaz it is comparatively rare, while in the ~~region~~ Antigua region, and ~~other portions of~~ central Guatemala in general, it is one of the commonest dooryard trees.

The matasano, known in Mexico as zapote blanco, and in the United States as white sapote, is a medium sized, usually somewhat spreading tree, with palmately compound leaves, small, inconspicuous flowers, and yellowish green fruits the size of an orange. ~~The outer covering of the fruits is a thin, membranous~~ The fruits have a thin, membranous skin, yellowish flesh of soft, melting texture and very sweet flavor, and one to five large, oval or elliptic seeds. In inferior varieties the flavor is usually acrid or bitterish; the best ones are pleasantly flavored and are ~~much~~ liked by the Indians. It cannot be said, however, that the matasano is looked upon by Guatemalans as one of their best fruits; it is considered rather a fruit of inferior quality, and the difficulty with which ~~the ripe~~ it is handled when ripe

~~(due to the tender skin) makes it somewhat unsatisfactory for marketing. Baskets of fruit seen in the market are usually in ax frequently in very unattractive condition, many of the fruits Many of the fruits seen in the markets are in bad condition, due to~~

(due to the tender skin and softness of the flesh) makes it somewhat unsatisfactory for marketing, many of the fruits ~~brought into~~ reaching the cities or towns so badly crushed as almost to be ~~unsalable~~ unfit for use. If carried to market immediately after ~~picking~~ no difficulty is experienced, for the fruits remain hard for several days and will stand severe ~~handling~~ treatment, but when ripened and ready for use they are injured by the most careful handling.

The matasano is nearly always consumed as a fresh fruit, but one of the companies which manufactures preserves in Guatemala City has ~~attempted to~~ used it to a very limited extent for canning. The possibilities of this fruit seem rather good, in spite of its defects. Superior varieties are obtainable; ~~and it seems possible to~~ the number of seeds is oftentimes so reduced as almost to leave a seedless fruit, and the ~~utilization of the~~ question of utilization has not yet been thoroly investigated. The trees are very productive, ripening their fruit in April and May throughout the highlands.

CHRYSOBALANUS ICACO L.

Icaco in Spanish

Rather common in towns of the west coast, such as Mazatenango and Escuintla. The fruit is sometimes shipped to Guatemala City.

The icaco is a large shrub or small tree, with small, thick, glossy obovate leaves. The fruits are plum-like in appearance, pinkish white, with a thin skin, cottony white flesh, and a large stone to which the flesh adheres closely. The flavor is rather insipid, and the principal use of the fruit is for preserving. It is a common species on tropical American seacoasts. Nowehere was it seen in the Guatemalan highlands.

CHRYSOPHYLLUM CAINITO L.

Caimito in Spanish

Grown in the towns of the west coast, and occasionally seen in the lower Motagua region of eastern Guatemala. Not a common fruit in any part of the country. Its culture is limited ~~xxx~~ to the lowlands, no trees being seen at elevations above 3000 feet.

The caimito is a medium-sized tree, handsome in appearance, with oval leaves deep green above and silky brown beneath. The flowers are small, purplish white, the fruit round, the size of ~~xx~~ a small or medium sized apple, externally deep purple or light green in color, according to variety. The skin is thin, the pulp translucent, somewhat granular in texture, containing several flattened seeds the size of squash seeds. In flavor the fruit is sweet, pleasant, suggesting slightly the nispero or sapodilla.

The caimito is eaten while fresh. It is very rarely seen in the markets of Guatemala City, and the production in the lowlands is not great. Its culture might well be encouraged in Guatemala, as it is a really excellent fruit.

CITRUS DELICIOSA Ten.

Mandarina in Spanish

~~Very~~ The mandarin orange is much less common in all parts of Guatemala than the sweet orange, but it is seen in numerous gardens in Antigua, and is occasional in other regions. The fruits, however, are small, in comparison with some of those produced in California and Florida, and the color is usually a dull greenish yellow. If left on the tree for some time after they have become fully ripe they become more highly colored.

CITRUS MEDICA LIMON L.

Limon in Spanish

The lime is one of the common fruits of the lowlands, but is nowhere seen at great elevations, it being one of the most tender of the ci trus family. It was not commonly observed above 3000 feet. Its small acid fruits are much used for making refreshing drinks, as they are in many other parts of the tropics. The lemon is practically unknown in Guatemala, its place being taken by the lime.

CITRUS ~~DECIBLANA~~ GRANDIS L.

Toronja in Spanish

~~Guatemalans in general have not yet learned to appreciate the grapefruit, or toronja as it is called in Spa~~

Guatemalans in general are not yet familiar with the toronja or grapefruit. It is rarely seen in any part of the country. A number of trees on the property of Mrs. Lucy Livingston Potts, at Jocoló on the shore of Lake Yzabal produce excellent fruit which is ~~xxxxxxxxxxx~~ greatly appreciated by the Americans who are fortunate enough to obtain some of it. Another small lot of trees near Montúfar supplies the United Fruit Company's hospital, and the officials of the company at Virginia, with a small quantity annually. In the highlands, around Guatemala City and Antigua, an occasional tree is seen, and the fruit is sometimes offered for sale by American stores in the city.

All of the bearing trees in Guatemala appear to be seedlings. In the lowlands the fruit is of excellent quality, comparing favorably with that grown in ~~xxxxxxx~~ Cuba and Florida. Better varieties are desirable, however.

LIMONIA

CITRUS LIMETTA Risso

Lima in Spanish

Under the name of lima the Guatemalans cultivate a fruit known to North Americans as sweet lime. It is a fruit larger than the sour lime, more or less oblate in form, and ~~xxxxxxly~~ umbilicate. The skin is rather loose, and the segments are easily separated. The pulp is filled with sweet, colorless juice. The fruit is insipid, almost lacking flavor, but due to its sweetness is much esteemed by the Indians.

The lima is nowhere cultivated extensively, but occurs in many sections of the country as a dooryard tree. It is a particular favorite that portion of the highlands known as Los Altos,--the region around Sololá, Quezaltenango, Momostenango, and Totonicapan. It is not grown at very high elevations, but is often seen at 4000 to 5000 feet, ~~xxxx~~ the fruit being carried to the towns and cities at higher altitudes.

AURANTIUM

CITRUS ~~AURANTIUM~~ SINENSIS L.

Naranja in Spanish

Introduced from the Old World by the Spaniards, the orange has become one of the commonest fruits of Guatemala, and one of the most highly esteemed. It is found in nearly every garden throughout the central part of the republic, from sea level up to 7000 feet. ~~in elevation;~~ in the Alta Verapaz it ~~is also abundant, and often~~ grows along ~~xxxxx~~ roadsides, ~~and in other places~~ wherever a seed has chanced to fall. Particularly fine oranges are grown in some parts of the Verapaz, notably around Teleman in the Polochic valley, at an elevation of a few hundred feet above sea level. Those of Amtigua (elevation 5000 feet) are also of excelltn quality.

The trees receive practically no care in most ~~instances~~ cases, yet they fruit abundantly. They are often attacked by the purple scale, Lepidosaphes beckii, as well as other scale insects, ~~xxx their productiveness does not often xxxxxx xxx~~ They seem able to withstand these pests, however, ~~xxx~~ although ~~their appearxxx~~ their foliage sometimes becomes yellow and their vigor impaired. Rarely are they planted in regular orchards, though a few such plantings were seen in Antigua, ~~xxx~~ and near Guatemala City, ~~and other regions;~~ None of these plantings contained more than one or two hundred trees.

All of the sweet oranges ~~xxx xxxxx~~ seen in Guatemala, with the exception of a few ~~xxxxx~~ budded trees introduced from the United States, appeared to belong to one race; the fruit

is uniform in character throughout the country, differing only in size, flavor, and a few minor characters. ~~No fruits with navels were observed among the seedlings. Ordinarily~~ The average size ~~of the fruits~~ is about three inches in diameter; the largest specimens ~~are~~ about three and a half. The color is deep orange, the skin rather thin but peeling fairly easily, the segments adhering closely to each other, ~~xthex pulpxxeryxjuicyx~~ There is not a great amount of "rag", and the pulp is very juicy tender, containing few seeds. The flavor is very sweet in the fully ripe fruit, but with sufficient acid to give an agreeable sprightliness. In general, the fruit is one of good quality.

The markets of Guatemala City are supplied with oranges throughout most of the year. They are not expensive, and are used very widely. ~~by nearly xxxxxxxxx~~ Few Guatemalans of the better class would consider a desayuno (early breakfast) complete without an orange, carefully pared and served upon a fork, by which it is held while it is being eaten. As in other countries, the orange enters into a certain number of salads and desserts, and it is used by the factories in Guatemala City for marmalade and preserves.

COCOS NUCIFERA L.

Coco in Spanish

Commercial coconut growing in Guatemala is limited to a few regions, but the palm is found in small numbers from the ~~[illegible]~~ seacoast up to elevations of 4000 feet, and a few stunted specimens are seen in the capital itself, at 5000 feet. ~~[illegible]~~ Its growth is most vigorous from sea level up to about 2500 feet.

In the small towns of the lowlands coconut palms are common, just as they are in other regions of tropical America. The ripe coconuts are often shipped to the markets of Guatemala City, ~~[illegible]~~ after most of the husk has been removed.

CRATAEGUS STIPULOSA

Manzanilla in Spanish; Cainum gainum in Cakchikel (Tecpan)

One of the most important indigenous fruits of the highlands, found thruout central and western Guatemala between 5000 and 8000 feet, approximately. It is common in the wild, and is also ~~planted~~ found around the edges of cultivated fields, along roadsides, and in dooryards.

The manzanilla is a large shrub or small tree, when very old sometimes having a trunk a foot or more in diameter, but never attaining ~~xxxxxxxx~~ to more than 25 or 30 feet in height. Usually it becomes a small, erect, slender tree with a thin trunk.

CYPHOMANDRA BETACEA Sendt.

Tomate in Spanish; caxlan fiel in Kekchi (Alta Verapaz).

The tree tomato, a half-woody plant about ten feet high, with scanty foliage. It is cultivated in several parts of Guatemala, being most common, perhaps, in the Verapaz, at elevations of about 5000 feet. The fruits occasionally appear in the markets of small towns.

The leaves are large, cordate-ovate, pubescent. The flowers are small, pinkish, in axillary racemes, the fruits are borne in loose clusters or sometimes singly; they are egg-shaped, about two inches long, dull red in color, with firm pulp containing many seeds. The flavor is similar to that of the tomato, but not quite so agreeable, especially when the fruit is eaten raw. When cooked, it is nearly as good as the common tomato.

The plant is seen only in dooryards or gardens.

ERIOBOTRYA JAPONICA Lindl.

Nispero del Japon in Spanish

Among introduced fruits in the Guatemalan highlands, the nispero del Japon, or loquat, is one of the most useful and highly esteemed. It is grown very commonly in gardens throughout the zone from 3000 to 6500 or 7000 feet, ~~xxxxxx occasionally xxxxxxx xxxxxxx level~~ Below 3000 feet it is not rare, but it is by no means so successful as it is in the cooler climate of higher elevations. It is seen at its best in the Antigua region, ~~xxxxxxxxxxxxxxxxxxxxxxxxxxxx~~ here there are trees in dooryards and gardens, and during October and November the fruit is abundant in the markets. Only seedlings are grown, of course, and ~~xxxx~~ practically all of them are rather inferior in character, so that the fruits are not as large nor of such good quality as those propagated by budding in California. It is highly desirable that superior budded varieties be introduced into such regions as Antigua, for the climatic conditions seem eminently suitable to the culture of this fruit.

The loquat, whose native home is probably in China, is well known in the warmest sections of the United States. It is a small tree, rarely more than 30 feet high, with large, lanceolate or elliptic-lanceolate coarsely serrate leaves, and small white flowers in dense, hairy panicles. The fruits are the size of plums, but produced ~~xxxxxxxxxx~~ in loose clusters. They are yellow when ripe, contain one to five

large seeds, and have juicy, whitish flesh of subacid flavor, suggesting the northern cherry.

Loquats are ~~xxx~~ very popular in Guatemalan when stewed or made into a sweet preserve. They are also eaten while fresh.

EUGENIA JAMBOS L.

Manzana rosa in Spanish

A small tree widely grown in tropical regions. Its culture in Guatemala is limited to the lower elevations, no specimens having been found above 5000 feet, and few above 4000. It is not particularly abundant in any region, as the fruit is not of great value, though very attractive and interesting. The trees bear profusely and are propagated very readily by means of the seeds, which often spring up where they have fallen beneath the trees.

The manzana rosa (roseapple) has handsome foliage, the new growth wine colored and the old deep glossy green. The leaves are slender, lanceolate, about six inches long. The flowers are conspicuous because of the long tuft of stamens. The fruits are the size of a small apricot, and of ~~similar~~ ~~si~~ yellow color when fully ripe. They are delightfully rose-perfumed. The flesh is crisp and pleasantly flavored, but is not of such character that it can be consumed in quantity by the ordinary person. The round seed is loose in the large cavity within the fruit.

The ~~fruit~~ uses of this fruit are few. It is eaten out of hand to a limited extent, and may be crystallised, but the product retains little of the rose flavor.

FICUS CARICA L.

Higo in Spanish

In certain sections of the highlands, notably at Sololá, the fig is commonly grown in dooryards and gardens. The fruits do not ripen well, however, and are usually picked before fully grown, and made into a preserve. They are abundant in the markets of Guatemala City during a certain portion of the year.

Aside from the highlands, between 5000 and 8000 feet, where the fig is best known in Guatemala, there are a few ~~pieces~~ ~~trees in the lowlands~~ spots in the lowlands where it is cultivated, and more successfully than at higher elevations, because of the greater amount of heat. At Zacapa excellent black figs are grown, rivalling those of California in size and flavor. This region is ~~quite dry~~ comparatively very dry, and experiences high temperatures during a large part of the year. The moist portions of the lowlands are not suitable for fig culture.

It seems worth while to encourage the cultivation of this tree in the Zacapa region and similar portions of the Motagua valley. The fig is so easily propagated by cuttings that there is no difficulty in perpetuating good varieties, as there is in the case of citrus ~~fruits~~ and other fruits which must be budded or grafted. ~~The introduction~~ It is this ~~difficulty~~ necessity of asexual propagation, ~~with~~ carrying with it the demand for technical skill in the operation of budding or grafting, which has ~~prevented many~~ resulted

in so many fruits being represented in Guatemala by inferior seedling races rather than by choice ~~variatiex~~ horticultural varieties.

In the higlands the fig tree does not grow to large size, specimens over 18 or 20 feet in height being uncommon.

FRAGARIA

Fresa in Spanish

Strawberry culture is fairly successful in the Guatemalan highlands, though the ~~lack of high temperatures~~ comparatively low temperatures ~~which obtain during all~~ of this region prevent the fruit from ripening as perfectly as it does ~~in the~~ ~~during the warm weather~~ in the Temperate Zone. The higher elevations seem best suited to this plant; much of the fruit ~~sold for~~ sold in the Guatemala City markets is grown in the mountains ~~nearby~~ nearby at elevations of 6000 to 7000 feet. Some years ago Mauricio Rossbach established a large strawberry plantation on the upper slopes of the Volcano Acatenango, at an elevation of 11,000 feet. ~~The~~ Good fruit was produced here, but the difficulties of transportation, and the lack of a market which would consume large quantities, caused the undertaking to be abandoned.

There is a limited demand for strawberries in Guatemala City at about 35 cents a pound. The fruits sold are usually lacking in color and rather small in size. It is doubtful if the best varieties are grown.

Hylocereus undatus Brit. & Rose

~~CEREUS TRIGONUS~~ Haw.

Pitaya in Spanish

A climbing cactus with three-angled stems, immense white flowers, and ~~pinkfruits~~ handsome pink fruits three inches or more in length. It is seen in many gardens in Antigua, where it climbs over walls and fences, and is occasionally cultivated in other regions. The fruits, which are oval or nearly round, are filled with white, ~~pulp~~ translucent, juicy pulp containing many small seeds the size of mustard seed. The flavor is sweet but not very distinctive; the ~~principal use~~ fruit is much used, however, in the preparation of refrescos or refreshing drinks.

Though commonest near Antigua (5000 feet) the pitaya grows also ~~occurs~~ at low elevations. ~~also~~ The plants are not very productive, and the fruit is rare in the markets of the capital.

Hufelandia anay Blake ~~spinosa~~.

PERSEA

Anay in Kiché (Quiché etc. queq.), Kekchi (Alta Verapaz)

HYMENAEA COURBARIL L.

Guapinol in Spanish; pak in Ketchi (Alta Verapaz)

A tree of medium size, rather common along roadsides in the warmer parts of Guatemala. It has ~~xxxx~~ coriaceous leaves composed of two oblong leaflets oblique at the base. Flowers small, yellow, in sort panicles. The fruit is a plump, broad pod three or four inches in length, few seeded, with ~~xxxxxx~~ sugary pulp. ~~It is often eaten by the Indians.~~ When traveling on foot, the Indians frequently rest beneath the shade of the guapinol tree and eat the sweet ~~pulp~~ fruit. It is not commonly brought into the markets, at least in any quantity, and has only been seen as high as 4000 feet.

INGA

Paternas in Spanish

Several species of the genus Inga are common in various parts of the country, some of them being limited to the lowlands, others reaching as high as 5000 or possibly 6000 feet. ~~Botanical they are somewhat~~ They are not as yet well known botanically, in most cases. All of them are spreading trees with pinnate leaves, the flowers in small racemes, and usually having a conspcious tuft of stamens. The fruit is a long slender pod, flattened and up to a foot in length in one species, cylindrical and shorter in another. The hard, oval seeds are embedded in a mass of jelly-like pulp, very sweet and in some varieties pleasantly flavored. There is a species growing in the vicinity of Coban Alta Verapaz, whose flavor strongly suggests the chinese litchi (Litchi chinensis), and is exceedingly pleasant.

Some of the paternas are used for shade in coffee plantations, ~~xxxxxxxxx~~ The fruits of several are sold in the markets. They are eaten out of hand.

This is known as cojiniquil. It is a common tree along water courses in the Alta Verapaz, and is also seen in coffee plantations. The tree is medium sized, reaching about 40 feet in ehgith, with a broad, open crown and rather scanty foliage. The leaves are large, with three or four pairs of leaflets. The flenider are ripened in abundance during September and October. The are six inches in elngth and

contain 6 to 10 irregularly oblong dark green seeds, each surrounded by white, jelly-like plulp. Whule the quantity of this pulp is not great the flavor is really excellent, and the fruit is popular among the inhabitants of the region.

JUGLANS REGIA L.

Nuez in Spanish

Momostenango, a small town north of Quezaltenango at an elevation of approximately 7500 feet, is the only spot in Guatemala where the Persian or English walnut was found commonly to be grown. Here it ~~xxxxxxxxxxxx~~ it is seen in nearly every door~~yard~~ and appears to be quite at home. Seedlings only are grown, but they produce nuts of fair size and good quality. The Indians carry them to Quezaltenango and even to Guatemala City, where they bring ~~extraordinarily~~ excellent prices.

In most other sections the Persian walnut is practially unknown. A wild species of Juglans (perhaps J. mollis of Engelmann) is common in the Verapaz, and its nuts, which greatly resemble those of the northern J. nigra in size and character, are eaten by the Indians, though they do not ~~xxxxxx~~ to be greatlt esteemed. The shell is very hard and thick, making it difficult to extract the kernel.

Also native Juglans

MALPIGHIA ?

Azerola in Spanish

One of the commonest dooryard plants at Amatitlan (3900 feet), but rarely seen in other sections. It is occasionally grown at Guatemala City, but was nowhere observed in the lowlands.

This species is much larger than Malpighia edulis, the Malpighia or Barbados Cherry of Florida and the West Indies. It sometimes becomes a small bushy tree 20 feet high, more commonly a large shrub, spreading in habit, with a dense crown. The leaves when young are covered with a thick whitish tomentum; when mature they are membranaceous, elliptic acuminate, about 4 inches long, bright green and glabrous aboge, heavily pubescent below. The flowers, which are produced in small axillary clusters, are scarcely an inch broad, with clawed, crepe-like petals of lilac-pink color. The fruits ripen mainly during August and September at Amatitlan; in appearance they suggest a large cherry, flattened at the stem end and sometimes pointed at the apex. They are bright red in color, with a thin skin and juicy, whitish flesh of peculiar subacid flavor. The seeds, three in number, are large and roughly winged.

The plants are very productive in many instances. The fruits are nearly always eaten out of hand. From Amatitlan they are sent to the markets of Guatemala City, the name azerola, by which this fruit is known in Guatemala, properly belongs to species of Crataegus grown in the Mediterranean region.

MANGIFERA INDICA L.

Mango in Spanish

Although an introduced species, the mango has, in Guatemala as elsewhere in the American tropics, become one of the commonest fruits of the lowlands. It is found along the west coast from sea level up to 4000 feet, and in eastern Guatemala, from Puerto Barrios up the Motagua valley to Sanarate or Chile. In the Polochic valley it is also abundant. While it grows most vigorously ~~in~~ at low elevations, due to the greater amount of heat, ~~it withstands the climate of certain parts of the highlands and gives fairly good r~~ it is occasionally seen in the highlands as well. The greatest elevation at which it was found was at Momostenango, (7500 feet approximately), but its growth here was stunted and unhealthy, and the situation is ~~xxxx~~ warmer than most others of similar elevation. At Panajachel, 5300 feet, on the border of Lake Atitlan, the mango succeeds very well, but this also is a protected situation. ~~xx~~ In the vicinity of Antigua~~xxx~~ (5100) the tree reaches fair size and is reasonably successful.

It may be said, however, that the ~~xxxxxxxxx~~ mango region of Guatemala par excellence is the Motagua valley between El Rancho and Gualan. ~~xxxx~~ The climate of this part of Guatemala is exceedingly dry, and nothing is so essential in mango culture as a dry climate, at least during that portion of the year when the tree is flowering and ~~fruit~~ developing its fruit.

This is not saying, however, that the best mangos are grown in the lower Motagua valley; on the contrary, the trees of this region all belong to the common seedling race of the West Indies which is known in Florida as No. 11,-- a very productive race but not of the best quality. Around Escuintla, on the Paicifc slope, there are other seedling races whose fruits are larger and have less fiber, though there are no mangos in Guatemala as fiberless as the Filipino mangos of Cuba or the grafted Indian varieties now grown in Florida.

The classification of Guatemalan mangos has not been undertaken, b ut is not a subject of great importance, since there are no very superior races and the vast majority of the trees belong to the No.11 race already mentioned. It would be a very meritorious work to introduce into Guatemala seeds of the Filipino race, and also grafted plants of the best Indian varieties. The latter has recently been done in a small way, but is worthy of much more attention.

The Indians of Guatemala are exceedingly partial to the mango. Most of the fruit produced int ehc country is comsumed while fresh, but a small quantity is preserved and canned. Little is done toward utilising green mangos, or toward preparing the ripe fruit in different ways. In these respects Americans have something yet to learn from the East Indians.

MONSTERA DELICIOSA Liebm.

Cultivated only in Guatemala as a decorative plant. As far as observed, the fruit is not used. The plant is occasionally seen in patios at Guatemala City and Antigua.

MAMMEA AMERICANA L.

Mamey on Spanish

Not very common in any part of Guatemala, but occasionally seen in towns along the Pacific coast. It is distinctly a lowland tree, rare above 2500 feet, but observed in one instance at 3900 (Amatitlan).

The mamey is a large and very handsome tree, with glossy foliage of an exceptionally dark green hue. The leaves are oblong-obovate, four to eight inches long, pellucid-punctate, the flowers white, fragrant, about an inch broad. The fruit is globose and quite large, occasionally attaining to six inches in diameter but more commonly four or five. The outer covering is thick and leathery, russet on the surface. The flesh is orange-yellow, firm and meaty in texture, somewhat juicy, and of pleasant subacid flavor suggesting that of the aprocot, whence the name Santo Domingo Apricot, by which the plant is somethimes known in English-speaking countries. The seeds are large, one to four in number, the flesh usually adhering to them rather closely.

The mamey is often eaten out of hand, but is of more value, perhaps, as a cooking fruit. It makes one of the most excellent preserves of the tropics, retaining its apricot flavor to a marked degree.

MOQUILEA PLATYPUS Hemsl.

Dunza in Spanish; mop pin in Ketchi (alta Verapaz).

MUSA CAVENDISHII Lamb.

Banano and guineo in Spanish; [illegible]

in Cuba [illegible]

MUSA PARADISIACA L.

Platano in Spanish; tul in Kekchi (Alta Verapaz) tulul in Pokonchi (Alta Verapaz); oatul in Cakchikel (San Antonio A.C., Tecpan)

MUSA SAPIENTUM L.

Banano or guineo in Spanish

OPUNTIA

Tuna in Spanish

PARMENTIERA EDULIS DC.

Cuajilote in Spanish

PASSIFLORA LIGULARIS A.DC.

Granadilla in Spanish

PERSEA AMERICANA Mill.

Ahuacate in Spanish (usually spelled aguacate, but ahuacate is etymologically preferable); ah or ateh in Ketchi and Pokonchi (Alta Verapaz) Cakchikel (S. Catarina, Chimaltenango) Kiché (Totonicapan, Sololá, Quezaltenango, El Quiché)

PERSEA SCHIEDEANA

Coyó or Kiyó in Kekchi and Pokonchi (Alta Verapaz) chucte, chuate or chaucte in Spanish (Motagua valley and southward)

PRUNUS SALICIFOLIA HBK.

Cereza in Spanish; caplín in Cakchequel (Chimaltenango); Tup in Kiché (Totonicapan); capulín in Cakchikel (San Antonio A.C.); caplín in Cakchikel (Tecpan)

PRUNUS PERSICA

Durazno and melocoton in Spanish

PSIDIUM CATTLEYANUM Sabine

Guayaba in Spanish

PSIDIUM FRIEDRICHSTHALIANUM Benth. & Hook.

Guayaba in Spanish

PSIDIUM GUAJAVA L.

Guayaba in Spanish; pata' in Kekchi and Pokonchi (Alta Verapaz); kiag in Cakchikel (San Antonio A. C.); ikieq in Cakchikel (Tecpan)

PSIDIUM MOLLE Bertol.

Guayaba in Spanish; Chamach in Kekchi (Alta Verapaz)

See Journal 1909

PUNICA GRANATUM L.

Granada in Spanish

PYRUS COMMUNIS L.

Pera in Spanish

PYRUS CYDONIA L.

Membrillo in Spanish

PYRUS MALUS L.

Manzana in Spanish

RUBUS ADENOTRICHOS SCHLECHT.

Mora in Spanish; Tokan in Kekchi and Pokonchi (Alta Verapaz); tokaing in Cakchikel (Alta Verapaz)

RUBUS

Moras in Spanish, tokan in Kekchi and Pokonchi (alta Verapaz). tukan in Cakchikel (Tecpan)

SOLANUM MURICATUM Ait.

Pepino in Spanish; nochpé in Cak-chikel (Tecpan)

mombin

SPONDIAS ~~PURPUREA~~ L.

Jocote in Spanish; rum in Kekchi and Pokomchi (Alta Verapaz); unum in Cakchikel (Sacatepequez); kanum in Cakchikel (San Antonio A. C., Tecpan)

SPONDIAS LUTEA L.

Jobo in Spanish

TAMARINDUS INDICA L.

Tamarindo in Spanish

VITIS - bilobofolia

Uva silvestre (wild grape) in Spanish

paaq in Cakchiquel (Tecpan)

Fruits, native species

Zapote
Aguacate-schmat
Jocote
Guayaba
Anonas
Casimiroa
Capulin or cerezo
Pineapple
Nance
Raptul

Papaya
Tuna
Crataegus sp.
Hymenea
Inga spp
Passiflora
Rubus spp
Nispero

Fruits, introduced species

Musa
Citrus of numerous species
Mangifera indica
Cherimoya
Eriobotrya
Fig
Apple, peach, pear, quince

Staple foodstuffs

Maize
Beans
Squashes & Pumpkins
Chayote
Sweet potato - yuca
Chile peppers
Matomate
Cabbage and other vegetables of European origin

Beverage plants

Cacao & pataxte
Coffee
Cane - aguardiente
~~Cocoa~~

Achiote