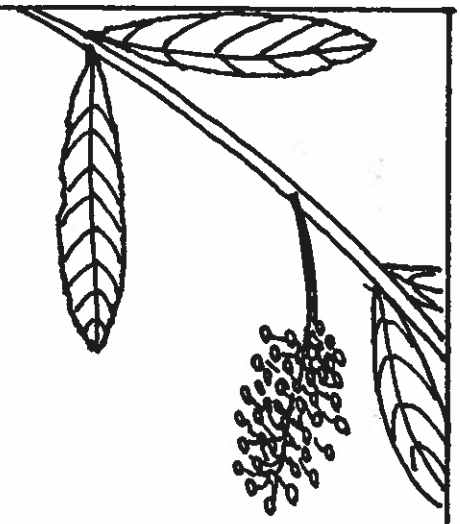

COLONIAL BERRIES: SMALL FRUITS ADAPTED TO AMERICAN AGRICULTURE

by

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INTRODUCTION

Berries, the smallest fruits of tree and bush, were used extensively in the Colonial period, although they never obtained the prominence on most farms of such crops as corn, tobacco, or wheat. Fruits in general were used to provide some sweeteners in the colonial diet, and, more importantly perhaps, as the basis for a variety of drinks. While grapes and apples (for cider) were the most widely used of all fruits for this purpose, berries were also found to provide excellent tasting juices for colonists, and were consumed in both a fermented and unfermented state. In addition, these small fruits were used frequently as medicinal aids because of the high amounts of the yet to be discovered Vitamin C and acidity found in berries. Berries, of course, were popular in desserts, and were eaten alone, with cream, or in tarts, puddings, breads and so forth. Every farmer, apparently, either grew or had access to berries of some type.

Botanically, the definition of a berry is a fleshy, many-seeded fruit, which remains closed even at maturity (it does not eject its seeds), and which develops from the ovary of a single flower.[1] This

technical definition excludes many of the fruits we commonly call berries, such as raspberries, blackberries and strawberries. Raspberries and blackberries are called aggregate fruits or coherent drupelets, because they develop from many ovaries, one seed to each, which then adhere to each other. Strawberries are considered to be accessory fruits because their seeds are held in a fleshy, ripened receptacle which is not developed from the ovary.[2] The mulberry, develops a fruit that resembles the blackberry, but which arises from the entire flower (including the calyx) and not just the ovary. Despite the botanical designation, however, these small, usually many-seeded fruits are all commonly included in the term berry, and this report will cover small fruits in consonance with the ordinary usage.

Numbered among the edible colonial berries which are comprised in this report are: Berberis, spp., barberries; Fragaria, spp., strawberries; Gaylussacia, spp., huckleberries; Morus, spp., mulberries; Ribes, spp., currants and gooseberries; Rubus, spp., blackberries and raspberries; Sambucus, spp., elderberries; and Vaccinium, spp., blueberries and cranberries. The report does not include grapes, for although the grape is, in fact, considered to be a "true berry", vitaculture is such an involved subject,

it is deserving of a report all its own. Likewise, non-edible berries, like hackberries and bayberries are left to other reports.

Berries are normally temperate zone plants, not thriving in extremes of heat, cold, humidity or aridity. Except for the dewberries, mulberries, and raspberries which were frequently killed by the harsh, northern winters, colonial berries tended to perform best and to produce the most in the northern American colonies. Berries of almost all types were known to European colonial settlers prior to their arrival in America. Small fruits of the same genus, though of differing species, are found throughout the world, and when the first explorers and settlers came to North America, they found berries of all sorts in abundance. The native Indians sometimes encouraged the natural production of berries by burning or otherwise disturbing the landscape.[3] The colonists evidently found that berries would naturally populate an edge between field and forest or a fence row. For a long time, therefore, colonial Americans did not cultivate berries, but simply gathered of their inherent plenty.[4]

When Europeans came to North America, they were particularly taken with the strawberry they found, Fragaria virginiana because of its size, deep red

color, and profusion. Since about the sixteenth century, Europeans, especially the English, French and Germans, had cultivated their own wild strawberry, Fragaria vesca, the woods strawberry, and had managed to increase the size and improve the taste of this species through careful tending. Moreover, through selection, early European gardeners produced some new cultivars in the seventeenth and eighteenth centuries: first, the Capitons of Belgium, and later, the Hautbois (or Hautboys as they came to be known in England), probably of France. Yet another variety, discovered growing in Switzerland, came to be called the Alpine. It was found to bear twice in the year a delicate, raspberry flavored fruit.[5] All these varieties, including the originally cultivated variety known as the woods strawberry, found their way into colonial American gardens. The European strawberries, F. vesca, bore fruit high on the plant as opposed to lower bearing American berry, F. virginiana, but men like Thomas Hariot could nonetheless easily see and appreciate the size and color of this wild fruit, which grew to be larger than the cultivated European varieties.[6]

Strawberries have traditionally been the most popular of fruits, probably because their early bearing (normally around May 15, between the 38th and 39th

parallels) is a sign of spring. Interestingly, the most prized of the seventeenth and eighteenth centuries' strawberries were the ones that were reminiscent of the flavor of raspberries. The New World strawberry lacked the flavor of the old European. Although the New World strawberry was common and easily gathered, and superior sorts were even frequently transplanted into cultivated patches, it remained popular for gardeners, who could afford it, to cultivate the Hautboy in America. The Hautboy had the disappointing aspect of ripening some two weeks after the native strawberry, however.[7]

The European newcomers to the North American continent found blueberries or huckleberries. The early settlers did not distinguish between these two plants, but assumed they were both the same as or closely related to their native bilberry. They referred to the American blueberries and huckleberries as hurts, hurthberries, whortleberries, and even as bilberries. One early New England traveller in 1670 called blueberries "sky coloured berries".[8] Huckleberries and blueberries are in fact two distinct species, the former having ten large and very hard seeds, the latter, many small and soft seeds.[9]

Blueberries (as well as huckleberries) were not cultivated in this country until the twentieth century. There are two main types of blueberries. Low bush blueberries, typified by Vaccinium vacillans, extend themselves by means of rhizomes (underground stems). Because of these underground parts they easily occupy burned-over areas and otherwise inhospitable locations. They can be found in the United States in coastal areas from Maine to North Carolina. They are also native to many parts of Canada The high bush blueberries, the only types to ever be cultivated, do not form rhizomes. Because the fruit is more easily gathered from these bushes, they were and are more desirable than the low-bush types, but they also require more care.[11]

Blueberries are seldom mentioned in the colonial literature. Lawson described four types he found in Carolina. One of these is likely to have been a huckleberry, probably Gaylussacia fondosa, because of its larger berry and large, harder seeds. Another is likely to have been the high bush blueberry, V. corymbosum, which grows some twelve feet in height and is found in swamps and low woods. Some species of what the English called whortleberries were sent to the British Isles from America in the decade of the 1760's.[12] Blueberries were enjoyed fresh, covered

with cream and sweetened with sugar and spices, or dried and used in puddings.[13] However, there is little mention of their use in drinks, and there is no notation of their use in medicine. Blueberries also require extremely acid soil, and would fair poorly in ordinary garden soils. For this reason alone, they were probably not successfully cultivated in colonial times.

Cranberries, closely related to blueberries, were a fruit new to Europeans. A bush known as the fenberry is native to the bogs of eastern England, but the British neither cultivated nor used this berry to any extent.[14] Moreover, this latter bush is more nearly related to the small mountain cranberry of the eastern United States, Vaccinium oxycoccos, (meaning sour berry) than to the cranberry Americans know today which is a much larger and more richly colored species, V. macrocarpum. This species is native to swamps, bogs and wet shores along the coast from Nova Scotia to North Carolina. This cranberry was cultivated beginning in the first decade of the nineteenth century, and prior to that was harvested in quantity from wild stands. Cape Cod and southern New Jersey were the prime growing areas, both for the wild stands and cultivated bogs, but some attempts were made to cultivate the cranberry for local use elsewhere.[15] In

Maryland growers had some success cultivating the cranberry in the counties fronting the Chesapeake by using boggy soils. Farmers in Allegheny County found they could raise the mountain cranberry on wet soils. Settlers in the middle areas, near Baltimore, could report of nothing but failure, however, in their trials of cranberries on their farms.[16]

Part of the problem lay in the misunderstanding of the growing requirements of this bush, much as was the case with the blueberry. Many had attempted to grow cranberries on upland locations. The fruit had failed because of a lack of water, or if watered heavily by the farmer, from stagnant water. More success was met by growers who selected low-lying meadow lands, but even this did not meet the exacting requirements discovered to be necessary to growing the plant by the commercial cranberry men of Cape Cod and New Jersey. However, since their use had been observed to cure a person of the scurvy, planting cranberries was seen by many to have a great value and to be worth the effort.[17] Cranberries were also highly valued for their use in jellies and tarts.[18]

Raspberries and blackberries, commonly lumped together as the bramble bushes, had wholly different standings in the eyes of colonial Americans. Blackber-

ries, Rubus laciniutus, had been prevalent in the English hedge rows, where they were considered a weed, though they were eaten there. Many of the early items found in the American agricultural papers on blackberries merely discussed the best means of ridding the farm of this pest.[19] Landon Carter used the blackberry, which was susceptible to a rust, as a means of forecasting the rust attacking his wheat crop.[20]

Better uses were found for blackberries, however, and a black dye and a syrup used to cure dysentery was made from the roots at least by the early nineteenth century. Blackberry tea was also thought to be a good cure for dysentery. Colonists were said to eat the fruit fresh with cream or in wine.[21] Starting sometime in the 1840's, the blackberry began to be cultivated, and some named varieties began to appear. However, the bush apparently suffered greatly from transplanting, and its tolerance for varied physical conditions was sufficiently low that many farmers found themselves unable to cultivate the plant.[22] The species most commonly cultivated were R. flagellaris, a trailing sort, and R. hispidus, a thornless plant, requiring moist or swampy soil conditions.[23]

Dewberries are a type of blackberry found only in America. A trailing bush, R. trivialis grows in the

South, and is said to produce berries with a better, milder flavor than common blackberries. Lawson claimed, for example, that the American blackberries were bitter and not so tasty as the ones found in England, while the dewberries were much better flavored than the English ones.[24]

Raspberries were at first believed not to be native to North America. Since their fruit was highly prized, varieties from Europe of the species Rubus idaeus were imported in some quantity. The imported raspberry was found to be unsuited to northern America's harsh winter, where it tended to fail frequently. Even in the Middle and Southern colonies, the imported raspberry was given great care and protection for the winter months.[25]

Later in the colonial period, a native red American raspberry, Rubus americanus, was discovered in the Catskill mountains, but the fruit of this berry was considered inferior in flavor to the European varieties. The black raspberry, another American native unknown until a distinguished Cincinnati horticulturalist, Nicholas Longworth, discovered and transplanted the berry from northern Ohio to his home garden in 1832. This berry, which became named Rubus occidentalis, was believed by Longworth to be a native

of northern Ohio and northwestern Pennsylvania, and was found to produce better in cool, moist climates than in hot and dry ones.[26]

Still later, toward mid-century, it began to be recognized that the berry named Rubus americanus, which was a very dark red fruit with large drupelets, and which only separated from its core with difficulty, was not a true raspberry at all, but a member of a group then called purple cane, now known as plumboy, and categorized as Rubus pubescens. The true, American red raspberry, Rubus strigosus, now simply called a variety of R. idaeus, was found in far northern thickets, clearings, and borders of woods, ranging from New England to southern Canada. None of these American raspberries was considered to be as good as the European varieties, however, and the European R. idaeus plants continued to be imported into the United States throughout the nineteenth century.[27]

Currants or gooseberries, both members of the genus Ribes, were not found in North America before the close of the colonial period. Since their fruit had been highly desired in England (Henry VIII had acquired them for his gardens from the Levant and Flanders, respectively, in the 1530's), many colonial farmers began to import them. The red (also white) and black

currants, Ribes rubrum (or R. sativum) and R. nigrum, respectively, both found the setting of the American continent to their liking and produced abundantly and were soon found springing up profusely in the wild. The bushes fared better in the North. Currants are high in natural pectin and Vitamin C. They were, therefore, desirable for jams which were used to help ease and cure sore throats, and were made into a hot drink which was used to ward off colds.[28] The currant, originally from Corinth, derived its name from that location. Currants were considered to be excellent substitutes for grapes.[29]

Gooseberries, Ribes grossularia, were not so easily adapted to the American climate. They were susceptible to the cold winters, but even more devasting was the native American powdery mildew. Many gardeners complained of being unable to grow gooseberries because of the attack of the mildew.[30] A native gooseberry, Ribes hirtellum, was discovered in rocky and swampy woodlands of New Hampshire and Vermont. This species was transplanted and cultivated beginning in 1849 in Massachusetts. The new gooseberry was found to be resistant to the mildew.[31] Despite this development, gooseberries never found great favor in America, and despite the many admonitions from manuals and journals,

gooseberries were found only rarely, even into the twentieth century.[32]

Unfortunately, both the currant and gooseberry bushes were found to be hosts of white pine blister rust, and many colonies, later states, of the Middle and North Atlantic coast began to legislate against the importation of either plant. These restrictions are still extant in many New England States.[33]

Mulberries were an important crop to colonial Americans, although not primarily for their fruit. A native red mulberry was found by early explorers, Morus rubra, which gave great hope to the belief that quantities of silk could be fabricated outside of China. The silk worms produced best when feeding on the tender new leaves of the mulberry, and particularly the Chinese white mulberry, Morus alba. The black mulberry, originally from Persia, M. nigra, was taken to many parts of Europe, where it was found to grow well in Italy. In colonial America the M. nigra was known as the Italian mulberry. M. rubra did not perform at all well as silk worm food, and M. nigra only in a fair fashion and was sometimes lethal to the worms. White mulberry trees were both fragile and expensive, and were seldom imported into America. Black mulberry trees were shipped to Virginia in great

quantities by James I of England. Beginning in 1826, a Philippine mulberry tree, M. multicaulis, was introduced to the United States by nurserymen William Prince and Gideon Smith. This tree was found to be fast growing, and was promoted as superior to M. alba for the silk worm. However, to the chagrin of those north of the Mason-Dixon line, it was soon found that mulberry trees, and particulary M. multicaulis, could not withstand the winters. An unusually cold winter in 1844 wiped out most of these trees. The following spring and summer, there was a severe blight which wiped out the silk industry south of the line. That year ended the American experimentation with silk. In any event, the economics of the industry, i.e., the monetary return for the hours invested, would probably have soon killed the silk raising ventures shortly thereafter, even had the elements cooperated.[34]

Mulberry trees, particularly in the earlier colonial periods, had an appeal for the uses made of both fruit and bark. Mulberries flowered late, but they ripened early, and were second only to strawberries in their early spring appearance in the colonies of Carolina, Maryland, and Virginia. They were reputed to be very sweet, and when dried they were used in place of raisins or currants. Crushed, they made a crimson

liqueur. Mulberries made a good wine, according to some reports, but evidently few used them in that way. The English mixed the mulberry liqueur with cider to make a "delicious wine". The black mulberry was more desirable for fruit than the native red one. By the middle of the eighteenth century, black mulberry trees could be found growing wild in many parts of the above colonies.

The wood of the mulberry trees was used when the quality of being pliable was dismissed. The timber was said to withstand soaking in water better than oak. In addition, the bark was used to make rope. In the latter case, a new "mulberry" was introduced from Japan called the paper mulberry, and its bark was used for both paper and rope. In fact, this plant Brousonetia papyrifera, was not a mulberry at all, but a member of the hemp family. In later years, the origins of many mulberries became confused, and this species sometimes was called Chinese mulberry by nurserymen.[36]

The remaining two berries to be considered here, the elderberry and the barberry, received little attention after the early colonial period. In Europe, the elderberry, Sambucus nigra, was a tree that grew some 30 feet tall and was especially known for its hard, close-grained wood. The American species,

particularly the most prevelant S. canadensis, grew only from 6 to 15 feet in height. They were found most often in elder swamps alongside streams or other moist places. The bark and blossoms were used to make a tea used as a laxative, and which reputedly had other medicinal properties. The berry, coming in blue, red or white, depending upon the species, was very sweet, but was apparently little used. It was not cultivated until the 1920's.[37]

The barberry, on the other hand, was very popular for both ornamental purposes and for its berries. The plant was imported from Europe, and it was said to have been first cultivated by the Berbers on the African coast, hence its botanical name, Berberis vulgaris. The bush easily became naturalized in America, and had grown in the wild into dense thickets by 1690. Like the currant, barberries were dried and used in desserts. They were also used in garnishes for all kinds of dishes. Caution was urged in planting, for it was said that the bush would take over walks, and that the bush in bloom would give off a very offensive odor. The amount of acid in the berry was so high that the birds avoided it. However, the colonists found it to have a cooling astringent taste. Unfortunately, the barberry was believed to be a host for wheat rust. Whether the plant did or did not cause wheat rust was a

subject which raged in debates carried on in the agricultural papers throughout the nineteenth century. Nonetheless, legislation was passed in most parts of the colonies to destroy barberry bushes. Many of these laws remain on the books in the twentieth century, and, as a result, few barberry bushes exist today in the United States.[38]

To recapitulate, early European settlers in American found small fruits which appeared to them to be similar to the fruits they knew in the Old World and which were more or less satisfactory when compared with those with which they were familiar. These fruits were important to the Europeans because they used them to make drinks, as medicinial aids, and as a sweet and juicy addition to meal times. When the Europeans arrived in America, they found many berries growing in profusion in the wild. At first, therefore, no attempt was made to cultivate any berry. Favorite European berries which did not seem readily available were soon introduced from the continent, however. In the mid-eighteenth century, farmers began adding cultivated berries to their gardens. At first, these were simply berries of superior stock from wild plants. Shortly, however, varieties of Europeans strawberries, raspberries, and gooseberries were imported in quanti-

ties. Because fruits were not cultivated like other farm crops, varieties tended not to be developed and named. Differences in berries could be attributed to speciation. However, by the mid-nineteenth century, variation in both American and European species of berries was developed for American gardens.

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CULTIVATION OF COLONIAL BERRIES

As noted previously, cultivation of berries did not begin until perhaps the mid-seventeenth century. The amount of articles, and other writings on the cultivation of berries was proportionate to their appeal. Thus, much was written about strawberries, and little about dewberries, for example.

When farmers began to cultivate berries they simply moved wild berries onto their fields. The reason that they bothered to move them at all was that farmers could thereby either promote superior sorts or make the gathering easier by having an assured supply at hand. Even at that, cultivation of berries did not imply the use of valuable field space for their cultivation. At first, only raspberries received a special plot for cultivation. The remaining berries were relegated simply to being thrown under fences or along hedge rows, or even just put out in the pasture. Even as late as 1846, a writer in an agricultural journal still felt obligated to inform other farmers that they could get more production from their strawberries by cultivating them in their gardens instead of having them in the fields.[1]

Commercial production of berries was definitely not carried on in gardens until the last third of the

nineteenth century, but sellers of commercial lots simply gathered enough of the wild fruit. It was the Civil War which spurred production of cultivated berries for food, particularly with the advent of canning. Diseases, which were rampant in this war, could be held in check only by the use of fruits in various ways.[2]

Prior to this, there is evidence that peddlers hawked through the streets of the larger towns and cities berries which had been gathered that day from wild plants. The problem was to keep the fruit fresh in its journey between bush and consumer.[3] Gray suggested that in the South no city except Charleston was sufficiently large to afford a market for fresh fruits, and that only those farmers who lived close to Charleston could have gathered or raised these perishable commodities for commercical purposes.[4]

Small fruits were ordinarily transplanted into gardens and a crop of berries was maintained or extended through vegetative propagation. The bush berries produce fruit on shoots (called canes) that were developed during the previous season, and these shoots produce fruits only one year. Therefore, in the fall, old wood was cut down to the ground, and new canes were cut back to about two feet from the ground. This

method was used to promote the most prodigious growth of fruit that could be expected the following spring. Propagation of new bushes was accomplished by planting cuttings from the new shoots in the early fall, and manuring and watering these cuttings well. This practice was followed for raspberries, blackberries (after 1850 when they began to be cultivated), and barberries (when fruit rather than ornamentation was the desired end).[5]

A similar method was used with currants and gooseberries, although with these fruits, the plant was allowed to grow into more of a tree or bush. Suckers which grew from the roots were removed, and old wood which did not produce new growth or which did not appear to be vigorously putting out new growth was pruned back. Every six to eight years, the entire bush was cut back to the ground to "renew" it. For the currant and gooseberry, plantings of cuttings were made in the early spring before the buds swelled.[6]

For all of these bushes, the recommendations were to plant them in rows, each bush about three to four feet from the other. A square rod of bushes was considered sufficient to provide a family with wine for a year. No other care was provided for these plants, with the exception of raspberries, aside from a sprink-

ling of a good shovel full of manure per bush each spring, with the exception of raspberries. Raspberries needed winter protection, and for this, the most common recommendation was to bend the canes to the earth and to place a shovel full of dirt on top of them to hold them in place. The dirt was then removed in the spring.[7]

The correct location for raspberries was a matter of some debate. Some recommended a dry, sunny location, while others insisted that a cool, moist location on the north slope of a hill or fence was best. Some even recommended planting berries in between rows of tree fruits.[8] In fact, it was likely that the location that was most ideal depended upon the latitude of the site. The farther south one is, the more need there is to find a location that is moist and shaded, while the farther north, the better to use a high, dry hillside to avoid frosts.

Mulberry trees were easy to plant and easy to care for. They were planted from slips of new growth. They were pruned twice a year, once in the early fall and again in the late winter, shortening the new growth to about one inch in length. If mulberry trees were to be used to feed silkworms, they were not to be permitted to grow tall, but kept to a low hedge so that more of the tender leaves would be produced.

For all of the above fruits, it was recommended that the area around the plants be kept open and not even planted in grass. This practice, it was expected, would help the fruit grow fast and ripen early from the heat of the sun reflected from the bare earth.[10]

Cranberries were picked wild until the early part of the nineteenth century when some venturesome souls attempted to plant them on their farms. The mountain cranberry, Vaccinium oxycoccos, could be planted with some success when planted at higher elevations on moist loamy or peaty soils, with plenty of shade, as on a north slope of a hill. These cranberries did not need to have soil that was particularly wet, though it needed to be constantly moist throughout the growing season. The more popular and larger cranberry, V. macrocarpum, of the Atlantic coast bogs was, however, a more difficult proposition. Little was understood of this cranberry's needs. Though the bush was known to grow in bogs, it sent runners out onto the drier upland, and it was assumed by some that this latter environment was what was really sought. Those who attempted planting cranberries in this kind of environment were soon discouraged. Others tried planting cranberries on small mounds in the midst of stagnant water. This method drowned the roots, and killed the plants. When rich soil was tried the bushes would grow

mostly large vines and no fruit. When they were planted in clay, the clay caked and choked the plants. Today, the needs of the cranberry are well known, and growers with access to the right kinds of irrigation and drainage equipment can produce bountiful crops. However, farmers in the nineteenth century were able to turn out fair yields if they planted the vine in a low-lying meadow, with water lying no more than twelve inches from the surface but not standing stagnant on the surface during growing season. A spot which sloped to a pond or stream, if the water was not too cold, was thought to be best. Farmers fronting on the estuaries around the Chesapeake Bay were able to grow cranberries under conditions such as these.

Harvested berries from all of the above fruit plants were handled in three different ways: 1) eaten fresh, 2) dried and/or bottled, 3) made into a drink or jam. Fresh berries had to be eaten fairly rapidly after they were picked, since they generally perished within one or two days. Either fresh or dried berries could be eaten baked in pies or tarts. To dry berries, they had to be placed on boards, which were in turn set at an angle, facing the sun. Berries could also be bottled. They had to be picked when not fully ripe, but when very dry, and placed in a clean bottle with a

cork pressed into the opening to keep the air out. Berries picked before ripening were more bitter than fully ripened ones. Some bottlers recommended standing or hanging the bottles with the cork down. If kept dry, and air tight, it appears that bottled berries could at least last through the winter.

Fruits could also be preserved by making them into jams or jellies or by turning the juice into drinks. To make a jam or jelly only required cooking the berry, and perhaps, straining the liquid. On the other hand, to make the berry into a drink required a press to squeeze out the juice. Berries were placed in water for a period of hours and then put through the press to extract the juices. The liquid then mixed with white cane or brown cane sugar, to which brandy might or might not be added in a small amount. This drink was often then allowed to ferment slightly before being corked and stored.

Only strawberry cultivation was markedly different from that of the other berries. After the Revolution, many farmers began to bring wild strawberries into their gardens in "beds". They also continued to import European varieties. This effort lasted until 1860, when, because of the more general use of lime and gypsum in the fields, the wild strawberries growing in

the fields produced larger and more prolific fruits, and garden cultivation ebbed.

Strawberries were an unusual plant in that in the wild state the flowers are (and were) generally hermaphrodites - that is, having a full complement of both male and female organs. However, during the sixteenth to nineteenth centuries, when transplanted, particularly to a foreign environment, the flowers had a tendency to lose one or the other of the sex organs. Staminate plants, ones having flowers with no, few or weakened pistils, produced no fruit. Pistillate plants, on the other hand, ones having no or few stamens, bore fruit, but the fruit were badly misshapen unless all the pistils were fertilized with pollen from an external source. One way to avoid the problem in female or pistillate plants was to place them near male or staminate plants, so that the pollen from the latter could fertilize the former. The mechanism was poorly understood, and many horticulturists refused to agree that strawberries could have male or female flowers even up until the twentieth century. But, by the second decade of the nineteenth century, growers had worked out a formula which semed to work fairly well. They placed one male plant in the vicinity of ten female ones.

In addition, the beds at first consisted of hills -- in which case a ratio of one male to eight females was exhorted -- but the hills were largely abandoned in favor of raised rows by 1800. The early bed would be constructed from a three foot wide strip of ground which had been carefully tilled, fertilized, and prepared. Then three lines would be laid out lengthwise, one foot apart, starting one-half foot from the edge, and perpendicular lines would be drawn every two feet. The strawberry plants, which were taken from rooted runners, would be set at each of the cross-marks. The plants would want to set runners right away but the farmer was to prevent this occurence, clipping all runners until the fruiting was finished. Later, when the runners started to grow, a rake was to be used to turn them to form lengthwise rows in the beds. If new plants were wanted for the following spring, the runners could be allowed to take root. The new plants had to be removed that next spring, however.

Late in the fall, the strawberries were to be covered with a litter, usually straw, to protect them from the cold. In the spring, fresh straw was laid under the plants to keep the fruit off the ground. After three years, it was necessary to renovate the bed by allowing the runners to root in the above manner, and hoeing out the mother plants. The process of using straw around the berries, which was at least several

centuries old, was once thought to have given the name to the plant, but other researchers have concluded that the name was a result of the way the plant grew through runners, "strawing" itself across the ground.[16]

Strawberries were often eaten fresh, but if not, they were made into preserves, or into strawberry wine or strawberry vinegar. Strawberry wine was considered a very agreeable drink, not growing acidic through fermentation.[17]

NOTES-CULTIVATION

[1] "Culture of Strawberries", American Agriculturalist, v. 5, #7, July 1846, p. 204.

[2] Russell, A Long Deep Furrow, p. 420.

[3] Ibid., p. 294.

[4] Lewis Cecil Gray, History of Agriculture in the Southern United States to 1860, Carnegie Institution, Washington, D. C., 1932, p. 190.

[5] American Farmer, v. 4, #32, November 1, 1822, p. 250.

[6] Ibid., p. 249;American Farmer, v. 4, #22, August 23, 1822, p. 170; Pardee,Complete Manual, pp. 78-84.

[7] Pardee, Complete Manual, pp,. 66-68; American Farmer, v. 4, #11, June 28, 1822, p. 106; and v. 4, #32, November 1, 1822, p. 250.

[8] "The Culture of the Raspberry", The Country Gentlemen, v. 1, #6, February, 1853, p.

[9] Francis J. Lawrence, "Growing Raspberries", United States Department of Agriculture, Farmers' Bulletin, #2165, Washington, D. C., June, 1979.

[10] American Farmer, v. 2, #1, June 9, 1820, p. 87, and v. 4, #29, October 1, 1822, p. 225.

[11] American Farmer, v. 7, #49, February 24, 1826, p. 88, and v. 7, #52, March 17, 1826, p. 113; Eastwood,The Cranberry, pp. 22-32.

[12] American Farmer, v. 4, #22, August 23, 1822, pp. 169-170.

[13] American Farmer, v. 4, #35, Novemeber 22, 1822, p. 277.

[14] Russell, A Long, Deep Furrow, p. 294.

[15] American Farmer, v. 5, #24, September 5, 1823, p. 190.

[16] American Agriculturalist, v. 4, #3, March, 1845, p. 61; American Farmer, v. 5, #24, September 5, 1823, p. 190; Wilhelm and Sagen, History of the Strawberry , passim.

[17] Pardee, Complete Manual, p. 11.

VARIETIES OF COLONIAL BERRIES

Because the colonists did not readily cultivate berries, varieties, except in gooseberries, raspberries and strawberries, were non-existant in the colonial period. Differences between types of a berry were due to differentiation at the specific rather than at the varietal level. There was often confusion as to what species came from which locale, and thus nurserymen's offerings could seem to be new when they really weren't. For example, with the mulberry, Bernard M'Mahon in 1804 had what he called Red, Black, and White American. William Booth, 1810, offered English Black, White Italian and Virginia Red. Lastly, Joshua Pierce sold a large, Black European, a Red American and a White Chinese. All three nurserymen had the same produce, however, which were: the white, a Chinese species, M. alba; black, a Persian species, M. nigra, cultivated widely in Italy and Greece; and red, an American native, M. rubra. Joshua Pierce also sold the (Japanese) paper mulberry, Brousonetia papyrifera, as did William Booth, but the latter simply called it Chinese.[1]

Currants came in two species, R. sativum and R. nigrum, the former having two varieties, red and white, and the latter having but one, black. Because the

English had originally gotten the currents from Flanders, some nurserymen referred to them as Red Dutch and White Dutch. In the early nineteenth century, nurserymen also offered a currant, R. odoratum, which had been discovered by Meriwether Lewis in his expedition across the Louisiana Purchase territory with George Rodgers Clark. This currant was commonly named the Lewis, Buffalo, or Missouri. A currant called Champaigne was really a gooseberry. Barberries had only one species and one variety, Berberis vulgaris.[2]

Bernard M'Mahon, 1804, offered for sale a vast array of American raspberries, "whortleberries" and cranberries, including the raspberry, R. occidentalis, which was not supposed to be known until discovered in Ohio by Nicholas Longworth in 1832. Only four of the species of blueberries listed by M'Mahon are recognized today, so the others were probably members of those same species and not so recognized by M'Mahon. Moreover, two of these species are not called blueberries today, and one was a lowbush berry, which has supposedly never been cultivated. Only one of the blueberries, V. corymbosum, would be recognizable today to all growers. It is the precursor of our twentieth century cultivated high-bush blueberries. Since he offered so many unusual species of berries, it would seem as if

M'Mahon went out into the woods and fields to gather what he thought looked good and offered it for sale. Still, his catalogue tends to belie the notion that blueberries and American raspberries were not cultivated. A few other nurserymen offered the American Red (purple cane) raspberry, R. pubescens. None of the others offered the other whortleberries, dewberries or cranberries M'Mahon did. Since there is a great deal of evidence to suggest early nineteenth century Americans did not cultivate blueberries or American raspberries, it can perhaps be assumed that M'Mahon offered but did not sell many of his American bush fruits.

The English loved gooseberries and during the eighteenth century had developed some thirty to forty varieties. Some of the American nurserymen were specific as to the ones they had for sale, others stated that they had some 20 to 30, and that a list would be provided upon request. Since none fared well in America, it is difficult to know what might have been the most popular varieties here. The varieties mentioned often are Great or Large Amber and Large Yellow or Golden Drop.[4]

European varieties of raspberries and strawberries were imported by colonial Americans. Raspberry varieties were first developed in Belgium, and the earliest varieties bear the name Antwerp: White Antwerp, Red Antwerp, and Yellow Antwerp, the latter being the latest developed. The English continued the varietal evolution, and in the 1820's William Prince sold ones labeled English Red and English White as well as Brentford Red, Brentford White, and Barnet. He also sold the American Red (*R. sativum*) and purple cane (*R. pubescens*).[5]

The development of strawberry varieties has a most interesting history. The European species, *F. vesca*, had by the seventeenth century, at least one named, cultivated variety, known as Capiton. In the eighteenth century, another variety appeared known as Hautboy. This latter variety was cultivated in America in the eighteenth century.

The American strawberry, *F. virginiana* was taken to Europe, especially to England, France, Belgium and the Netherlands, where it received some attention in the botanical gardens. Plants taken from the area around Virginia became known as the Scarlet strawberry. Plants taken from New England and Canada, on the other hand, while the same species, had a habit of ripening

only where touched by the sun. As a result, these latter berries became known as the Green strawberries. Early Scarlet strawberries, a selection of the Virginia plantings, and Green strawberries were both sold in America as if they were European varieties.

In the period from June, 1712 to February, 1714 a Frenchman, Amedee Francois Frezier was on a spying mission for his native country along the coasts of Chile. For most of this time, he was settled in Concepcion, Chile. He noticed a very large fruiting strawberry growing there on the coastal levees where it was tended by the Indians. When he left Concepcion, Frezier brought some plants with him back to France. These were grown in some of the botanical gardens. This new strawberry, F. chiloensis, became known as the Chili. It was a strawberry that would last a long time after being harvested, and though it had a poor taste compared to the European varieties, growers around Brest made a small fortune exporting the freshly picked berry to Paris and London between 1735 and 1790. The Chili strawberry plant was also exported to North America late in the eighteenth century.

Unfortunately, while the Hautboy tended to bear a heavy number of male flowers, the Chili strawberry tended to be a female variety in Europe. Growers in

France remedied the situation by interplanting male Virginia and Hautboy strawberries with the Chilis, usually at the ratio of 1:6. Around 1750, a strawberry no one had ever seen suddenly appeared in English gardens. Philip Miller of the Chealsea Physic Gardens was the first to recognize it. This new strawberry was called the Pine because its odor and flavor resembled a pineapple.

In 1766, Antoine Nicolas Duchesne of France, figured out that the Pine was a chance cross between the Virginia and Chili strawberries. The "Old Pine", "Pine", or "Pine-Apple" variety was imported in America in the eighteenth century, together with the others mentioned above. The Pine was a hermaphrodite, having stamen and pistils in the same flower, and it was both long-lasting once picked, and sweet tasting. It became the progenitor for all of our modern strawberries. Shortly after the discovery of the Pine, and the way in which it came into being, many gardeners began experimenting in England and France with developing new varieties through crossing Virginia and Chili, Pine and Chili, and Pine and Virginia strawberries. The cross between Virginia and Chili strawberries was a more logical combination than the Chili or Virginia with the Hautboy, even though all were grown together, because

both F. virginiana and F. chiloensis are octoploid in their chromosome numbers (2n=56), while F. vesca is only diploid (2n=14).

Once in America, the Pine species were used in furthering varieties available here. One of the first developed was by Charles Hovey of Cambridge who made selections of the Pine during the 1830's, and named his variety Hovey's seedling. Two decades later, in Albany, New York, the Wilson (or Wilson's Albany) was devevloped by James Wilson. He had made a selection of a superior hermaphrodite flowered natural hybrid between Hovey and Black Prince (another Pine then available). This new strawberry eliminated forever the need to distinguish between male and female flowering strawberries, as the variety remained truly hermaphodite.

The colonial or post-colonial American would have available to him Hautboy, Green, Early Scarlet, Hudson (an American name for Early Scarlet), Old Pine, Chili, and after 1832, Hovey. According to the agricultural papers, each of these varieties had its followers, and none can be judged the favorite.

NOTES-VARIETIES

1 Bernard M'Mahon, Catalogue of American Seeds, Philadelphia, 1804; William Booth, A Catalogue of Fruit Trees and Fruit, Baltimore, 1810; Joshua Pierce, Catalogue of Fruit and Ornamental Trees and Plants Washington, D. C., 1824.

2 William Booth, Catalogue, 1810, Joshua Pierce, Catalogue, 1825; Prince and Mills, Treatise and Catalogue of Fruits and Ornamental Trees and Etc., Flushing Landing, New York, 1823; Fernald, Gray's Manual, p. 751.

3 Bernard M'Mahon, Catalogue, 1804; Prince and Mills, Treatise and Catalogue, 1823; David and Cuthbert Landreth, Catalogue, Philadelphia, 1826; Fernald, Gray's Manual, pp. 1131-1134.

4 William Prince, Fruit Trees and Shrubs, Flushing Landing, Long Island, New York, 1790; William Booth, Catalogue, 1810; Leighton, American Gardens, pp. 231-232.

5 William Prince, A Large Collection of Fruit Trees, Flushing Landing, Long Island, New York, 1771; Prince and Mills, Treatise and Catalogue, 1823.

6 Wilhelm and Sagen, History of Strawberry, passim; George M. Darrow, The Strawberry; History, Breeding and Physiology, Holt Rinehart and Winston, New York, 1966, pp. 108-119.

CONCLUSION

Berries were very important to colonial Americans as a source of inexpensive fruit (or at least easily obtainable fruits) for drinks, and to meet a need for medicines. Incidently, berries were also good for sweet treats in desserts -- tarts, pies, puddings, or eaten fresh with cream. The strawberry was the piece de resistance of fresh berries, both for its earliness and fine flavor.

Because berries were easily found in the wild when European settlers arrived in America, few were cultivated. Even in the mid-seventeenth century, cultivation generally consisted of moving the berries from the wild to fence rows, hedge rows and pastures of colonial farms. If berries were to be sold commercially, they were gathered from the wild in locations close to the large cities, where they were peddled on the street. Only raspberries and strawberries received more attention than the ordinary berry plants in the eighteenth century, except when mulberries were to be raised for silk worms.

Varieties of berries only became important in America after the Revolution, and in some instances not until after the Civil War or even the start of the twentieth century. Though colonists were very much

interested in the use of berries, their lack of concern with cultivation resulted in a concomitant lack of development in variation until very late in American agriculture.

NATIONAL COLONIAL FARM PUBLICATIONS

The Production of Tobacco Along the Colonial Potomac

Corn: The Production of a Subsistence Crop on the Colonial Potomac

"English" Grains Along the Colonial Potomac

Of Fast Horses, Black Cattle, Woods Hogs and Rat-tailed Sheep: Animal Husbandry Along the Colonial Potomac

Investigations Into the Origin and Evolution of Zea Mays (Corn)

Update on Maize

A Conflict of Values: Agricultural Land in the United States

The Development of Wheat Growing in America

Root Crops in Colonial America

Farmers and the Future: Opinions and Views of Maryland Farmers

Colonial Berries: Small Fruits Adapted to American Agriculture

The Cultivation and Use of the Onion Family in the Colonial Chesapeake Region

The American Chestnut (a collection of articles appearing in the Almanack)

Amerinds of the National Colonial Farm Region: A Collection of Five Articles

A Companion Planting Dictionary

Herbs of the National Colonial Farm

Four Seasons on a Colonial Potomac Plantation (the National Colonial Farm "Picture Book")

Colonial American Fiber Crops

European Leaf Vegetables in Colonial America

Forage Crops in the Colonial Chesapeake

Colonial American Food Legumes

Colonial Poultry Husbandry Around the Chesapeake Bay

Orchard Fruits in the Colonial Chesapeake

Flower Culture in the Colonial Chesapeake

Agricultural Implements Used by Middle-Class Farmers in the Colonial Chesapeake