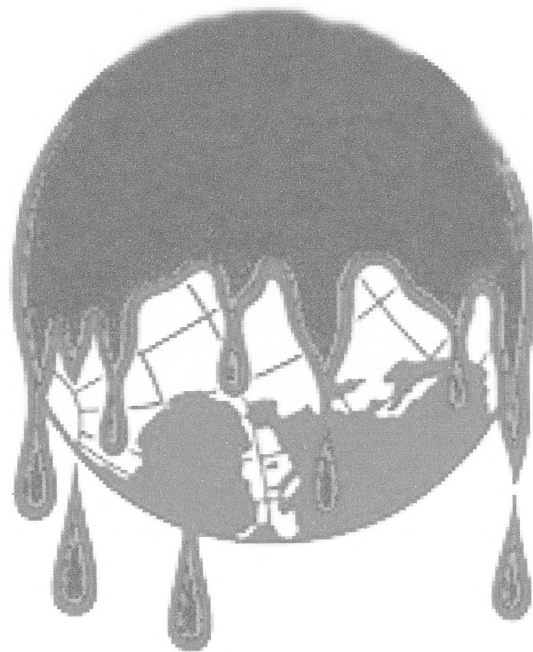


A Chocolate Covered World

A Paper for the Hopkinsville, Kentucky Athenaeum Society

September 1, 2011

Franklin A. Nash, Jr., Ph.D.



A Chocolate-Covered World

A Paper for the Hopkinsville, Kentucky, Athenaeum Society
September 1, 2011

Franklin A. Nash, Jr., Ph.D.

In the Western world the history of food and drink has become an acceptable scholarly subject only in fairly recent decades. As a result, culinary history was previously examined only by persons with amateur interest in a particular food or drink. This is especially true with respect to chocolate and the fruit of the cacao tree from which it is made. The true origin of this substance is to some extent still at least partially hidden in the sometimes unclear area of New World prehistory. Much of what has been written about the history of chocolate has been described as "accepted fiction."

Modern Westerners usually think of chocolate as a sweetened solid form. Yet throughout nine-tenths of its long history, chocolate was a drink (not the diluted and sweetened "cocoa" with which you are familiar.) Various historians report that there were different ways of using this drink, sometimes mixing it with other ingredients, but it appears that the most popular use by far was as a very special, highly-prized drink. It is indicated that the drink had a somewhat bitter taste, I assume similar to the intense dark chocolate of today that has the highest percentage of cacao. This early drink was likely made from 100% cacao. I chose some samples of a modern-day solid chocolate with a high percentage of cacao to perhaps give you an idea of what this early drink might have tasted like. (On tables)

The cacao tree, its fruit, and the process by which chocolate is produced are an intriguing story as is the surprisingly long history. Earlier this year my wife and I were fortunate to have a cruise down the Amazon River in Brazil. During the return voyage home we made a one-day stop and enjoyed a tour in Tobago. This tour was unique for us in that we were introduced to the

fascinating story of the growth and production of chocolate, and it was not what I would have expected. The present owner of the estate we toured said that prior to the area being destroyed by a hurricane, his grandfather had a successful cacao plantation and he, the present owner, is in the process of restoring it. This is probably a good spot to give you the definitions of a few confusing terms you will be hearing: Cacao - the name of the tree that produces the seeds from which chocolate is made – also the name of the seeds; Cocoa - a variant spelling of cacao but often referring to powder made from cacao seeds after they have been roasted, ground and freed of most of their fatty oil. It also refers to a hot drink made by combining cocoa powder with water or milk and sugar. This word is often, but erroneously, pronounced, “coco.” Coco is an entirely different word referring to a different tree—the coconut palm. Cocoa butter - a yellowish-white, waxy solid obtained from cacao seeds and used in manufacturing pharmaceuticals, confections, and soap. Also on each table are some pictures to illustrate part of the story. (See envelopes) On this Tobago Cocoa Estate we saw not only beautiful mountain scenery, but the growth of bananas, coffee, and the unusual trees that produce fruit that eventually becomes that long time, over 4,000 years, favorite, chocolate. The official botanical name of this tree is “Theobroma cacao.” It is unusual in that it is a relatively small tree that grows underneath larger trees, and the fruit that it produces grows from the trunk and larger limbs of the tree rather than from the branches. It is also unique in that it produces fruit only in areas with a latitude of twenty degrees north to twenty degrees south of the equator. To the north this is a line running through southern Mexico just south of Guadalajara and just north of Mexico City. To the south this is a line that runs through northern Chile and southern Brazil. Even within this area the trees do not produce well if the altitude is such that the temperature falls below sixty degrees Fahrenheit. To

help reduce damage to the fruit by predators such as squirrels, monkeys and rats, trained falcons are used to patrol the area. It is noted that growth in the natural forest is important because of the material that collects on the forest floor which is home to a particular insect called midges that are necessary for pollination of the cacao fruit. It has been found that because of the necessity of these conditions, neat, clean plantations of trees planted like other fruit trees, often doesn't work. Many other growing factors need attention but are too detailed to mentioned here. The fruit consists of pods approximately one foot or so long. When these pods are cut open they are filled with white pulp-covered seeds. The white pulp has a very pleasant sweet taste but the inner seeds are quite bitter. The processing of this fruit is interesting and we were able to see many of the steps in progress. After the pods are removed from the tree, the pulp-covered seeds are taken and placed in wooden containers where they are covered with what appeared to be banana leaves and where they will ferment for a specified time. During this time new growth shoots will start from the seeds then die. This is a necessary part of the process for the desired chocolate flavor of the seeds to develop. The seeds are then laid out in the sun and dried. These cacao seeds are then used for the production of chocolate.

About four-fifths of the known history of chocolate predates the fall of the Aztec empire in 1521. Current research suggests that the origin of processed chocolate appears to date back to the farmers of southern Mexico's Pacific coastal plain, about four thousand years ago and then to the Olmecs who followed them from about 1500 to 400 BC. After the Olmecs came the Mayas and the Aztecs. The Mayas had a system of hieroglyphics and reportedly wrote thousands of books on bark, but only four remain intact. In the 1950's and later, epigraphers translated how chocolate was thought of as "food for the gods." It was also noted that the Mayas used cacao

beans as money. I guess that they would not have agreed that “money doesn’t grow on trees!” When the Aztecs came into power about 1100, cacao continued to be important as a special drink and as a form of money, and was also used in ritual ceremonies. They used chocolate in their ceremony of human sacrifice by covering with chocolate the obsidian blades used to carve out the heart. The Aztecs believed that the seeds of the cacao tree had been brought from paradise and sown in their garden. In Aztec society only the elite could drink chocolate; the royal house, lords and nobility. Even the priests were not allowed any.

The first contact with chocolate by the Old World was when Columbus on his fourth voyage in 1502, encountered a Mayan trading canoe which had cacao beans on board. He made land on the island of Guanaja, north of Honduras, and discovered boats with “strange almonds.” Columbus never tasted chocolate but wrote about it in his accounts. Like the land of the new world, he never knew of the world of chocolate he had found. When Cortez came into Mexico in 1519 they soon learned that cacao beans could be used to buy things and referred to them as “happy money.” It was reported that not long after the fall of the Aztec empire in 1521, the daily wage of a porter in central Mexico was 100 cacao beans. A document in 1545 indicated that a turkey cock was worth 200 cacao beans, and a large salamander (an Aztec delicacy) was worth 4 cacao beans. A fish wrapped in maize husks was worth 3 cacao beans and a tamale, one bean. They even started counterfeiting cacao beans!

With the fall of the Aztecs a new era in the history of chocolate was entered with transformations by the Spanish conquerors, including even new terminology such as the word, “chocolate” itself. (Spanish, chocolate) When the Spanish conquered that part of the New World they at first had an aversion to drinking the bitter chocolate, but over time it became a “woman

thing". The poorer Spanish married native women and the rich men made concubines of them. It was not long before an Aztec woman was in every kitchen. By this time the women were perhaps the first "chocoholics" and the Spanish men soon became addicted. Following this, chocolate made the journey to Europe during the Renaissance. From the elite drink among the copper-skinned, befeathered Mesoamericans, to the white-skinned, perfumed, bewigged, overdressed royalty and nobility of Europe, it was said that chocolate conquered Europe! As a diplomat to Spain, John Adams (our 2nd President) wrote to his daughter in 1779, "I have met with few things more remarkable than the chocolate."

This has been a brief statement of the fascinating long early history during which chocolate eventually became known and desired by many parts of the world. From the ancients who found in early forms of chocolate a substance considered as near sacred, to those who reserved it for only the elite, to those who used chocolate rather widely and experimented with different ways of using it, to the masses who became highly attracted to it, even to the point of near addiction. As with anything that becomes widely desired, entrepreneurs began to show up to develop methods of mass production and profits. Thus started the new and modern history of chocolate which includes, of course, deviations from the old processes that yielded the highly revered liquid variety with limited availability, but also refinements, some of which have numerous advantages, including certainly vastly greater availability.

Some of the first to get into this new movement were the Quakers in the mid 18th century. Dr. Joseph Fry of England started a process of making a solid chocolate bar from cocoa powder which produced a less expensive bar for the masses. This was later perfected in the United States. Another Quaker by the name of Cadbury introduced the first boxed chocolate and is

credited with producing the first Valentine candy box. The oldest chocolate company in what is now the United States was started in Dorchester, Massachusetts, in 1765, by an American physician, Dr. James Baker and his partner, John Hannon, from Ireland. The company, that eventually became Baker's Chocolate, had spread to California by the gold rush of 1849. Having heard of Baker's Chocolate all my life, it was interesting to me to note that the brand name referred to a person and not to being a baker! In an old Baker's Chocolate cookbook, this story is told: "Abraham Lincoln had a grocery store in New Salem, Illinois, in 1833. When the building was restored later, researchers studied Lincoln's faded records and discovered that the only packaged advertised food sold in the store was Baker's Cocoa." Baker's Chocolate is now owned by Kraft Foods. In 1852, an employee of Baker's Chocolate, Samuel German, created a new sweeter chocolate which was called "German Chocolate" and later made famous by the German Chocolate cake. Again, it was interesting to note that this name is in reference to a person and not to Germany!

Since the end of the 1800's the Swiss have dominated the world of chocolate. Their people, the number one consumers of chocolate, in 1990-91 annually consumed eleven pounds of chocolate per capita, compared to five pounds per capita consumed by Americans. Henri Nestle (1814-1890), a Swiss chemist, in 1867 developed the first powdered milk and another Swiss man, Daniel Peter, invented the first milk chocolate bar by combining the powdered milk with chocolate. Today, Nestle's is the world's largest food corporation. Yet another Swiss, Rudolphe Lindt, invented a procedure, referred to as conching, which uses specially designed equipment to process the cacao beans for a smoother and better tasting chocolate. Lindt was in partnership with a man named Sprungli, to whom he eventually sold his business. The Sprungli family had

been in business since 1845. Under the name of Lindt & Sprungli, or sometimes just, Lindt, it is still a leading chocolate company today.

Now a United States division of Lindt & Sprungli is the well-known Ghirardelli Chocolate Company. In 1817, Domenico Ghirardelli was born in Rapallo, Italy, to an “exotic foods importer” and his wife. He received training and experience in the chocolate trade throughout his childhood and youth, and after a couple of episodes in this business in South America, he heard about the 1849 gold strike in California. He moved there, did some prospecting, set up a store in a tent and sold supplies and confections to fellow miners. Then in 1852 he started his first store in San Francisco. The business continued to grow and by 1864 was selling chocolate and other items to the United States, China, Japan and Mexico. In 1855, the company imported 450,000 pounds of cacao beans. In 1892, Ghirardelli retired and his sons, then later others took control of the company which continued to grow. In 1965, San Francisco declared Ghirardelli Square, where most of Ghirardelli's buildings were, an official city landmark. Then in 1967 the production facilities moved to San Leandro, California. Ghirardelli Square continued to maintain an area to demonstrate for tourists, the general process of making the chocolate, and the retail area of the company. The company ownership changed hands a few times until 1998 when Lindt and Sprungli of Switzerland gained whole ownership of the Ghirardelli Chocolate Company. Ghirardelli is one of the few chocolate companies in the United States to control every aspect of its manufacturing process, including the conching procedure invented by Lindt. Up to 40% of the cacao beans shipped are rejected in order to use only the highest quality beans. They make at least 18 flavors of chocolate including, “Midnight Reverie”, which is 86% cacao. Ghirardelli is the second oldest chocolate company in the United States,

next to Baker's.

Milton S. Hershey was born in 1857 in a farmhouse in central Pennsylvania. He was a descendant of people who had come from Switzerland and Germany in the 1700's. He was raised as a Mennonite, and attended school only through the fourth grade, when his father put him to work as a printer's apprentice. He quickly found that this was not for him and over the years became involved in several jobs related to the candy business. He then moved back to his home community where he established a reputation as a candy maker in his successful business, the Lancaster Caramel Company (located in Lancaster County). In 1893 he was fascinated by the German-made chocolate machinery on display at the World's Columbian Exposition in Chicago. He bought that equipment and had it installed in his Lancaster plant. There he produced his own chocolate coatings for caramels. Later he sold the caramel business for one million dollars and concentrated only on chocolate. In 1903 he began building what is now the world's largest chocolate manufacturing plant, in the town now known as Hershey, Pennsylvania. Milton Hershey has been called the Henry Ford of the chocolate industry. Even early in the growth of his chocolate company he owned 8,000 acres of dairy farms with Holstein cows to provide the vast amount of fresh milk needed each day. The company is involved with many kinds and forms of chocolate, having fairly recently added a line of special dark chocolate as have most other chocolate companies. Over the years the most popular items have been the Hershey's milk chocolate with almonds bar and the Hershey's kisses. I don't have the recent statistics, but in the 1980's at least 25 million kisses per day were produced. The Hershey Foods Corporation today has annual sales of over 2 billion dollars!

Milton Hershey used his fortune primarily for two projects: the town of Hershey and the

Hershey Industrial School, now known as the Milton Hershey School. Since Milton and his wife Catherine had no children of their own, they founded this school for orphaned boys in 1909. Its mission is to nurture and educate children, boys and girls, who are in financial and social need. Now supported by the Hershey's Deed of Trust, it is the largest residential pre K through 12 school in the United States. It provides **free** education, career training, housing, clothing, sustenance, health care and counseling to over 1,100 racially and ethnically diverse boys and girls. The school now occupies 2,640 acres!

Today, the chocolate industry in general has and is growing so rapidly, I will make only a couple of notations in this area. The Ivory Coast is a country about the size of New Mexico, and located on the West coast of Africa, between about 5 and 10 degrees north of the Equator. A recent report shows it as the world's largest cacao producer, growing about 1/3 of the global crop. This, along with other spots in Africa, produces 55% of the world's crop. Mexico, where it all started, produces only 1.5%. The most recent "boom" area is Hawaii. Starting in 1986, one man began planting large numbers of cacao trees on the Big Island, Hawaii. He found that the conditions there were ideal, including a large population of all five kinds of midges, the insect necessary for pollination. Many more trees per acre can be planted, 1350 compared to at best 600 elsewhere. Also, the trees produce five times as many pods per tree. Even with this mass production, the quality of the beans is proving to be high. The beans are grown in Hawaii but then shipped to California for processing.

In the midst of all this, there are a few companies that are still holding out and insisting on top quality chocolate. One of these is Godiva Chocolatier of Brussels, founded after World War II. Their chocolate is more expensive, but smooth even with higher percentages of cacao.

(Can be purchased at Target) One reportedly even higher up on the quality line is Valrhona, a French firm founded in 1925.

You have probably noticed during the past two or three years that there have been numerous brief articles in various places that talk about the health benefits of eating chocolate. As is usually true with such reports of studies about various topics, there is little if any reference to appropriate controls for variables that might effect the claims. For this reason I tend to read such reports with at least caution. Although this factor has certainly been present in the reports about the benefits of eating chocolate, I have noted a number of consistencies among the reports, and that some of the claims appear to be in line with what I understand to be presently-accepted medical opinions. According to one article ancient texts show more than 150 medicinal uses for cacao seeds, and modern science seems to show that the Mayans and Aztecs were at least on target. Cocoa reportedly contains more than 700 bioactive compounds including flavonoids. It is one of the richest known sources for flavonols which can act as antioxidants. Antioxidants can be associated with improved artery function, lower blood pressure and increased HDL. An article in the February 21 issue of Time this year, reported that Japanese investigators found that polyphenols in cocoa attach to genes in the liver and intestines, activating the ones that produce HDL and suppress LDL. In the April, 2008, AARP newsletter it was noted that dark chocolate is a leader for antioxidants which help to control the molecules that damage cells and hasten ageing and disease. All of the articles I read agree that the higher the percentage of cacao in a product the more antioxidants are present. A cacao percentage of at least 70 is usually recommended. Another factor addressed by several of the articles has to do with how much and how often to eat the cacao products. Several stress the importance of being aware of the number of calories and

the fat content of the product in question. If too much is eaten too often the bad effects of the calories and fat can counteract the benefits of the cacao. For this reason some of the articles recommend small servings a few times per week. One August, 2008, article reported that German researchers found that one-fourth of an ounce of chocolate per day trimmed three points off hypertensive patients' blood pressure. There was no indication of the type of chocolate or the percentage of cacao in this case. A report in the Journal of Nutrition indicated that one square of dark chocolate two to three times per week lowers the risk of heart disease by 33%. However, the size of the square and the cacao percentage were not given. From these and other reports it does appear that moderate consumption of chocolate products with 70% or more cacao can be physically beneficial.

From the ancient and small beginnings in Mexico to the rapidly growing mass production around the world, this truly appears to be approaching "A Chocolate Covered World."