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MY BLOODTYPE IS ARABICA: AN EXAMINATION INTO WHY AND HOW WE
DRINK COFFEE

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ABSTRACT

Coffee is a ubiquitous part of our world's culture. It is the second most traded commodity on the market and in some form or another, over half of the world's population consumes it daily. I used to naively believe coffee solely existed in the form of Starbucks or Dunkin' Donuts – I didn't even realize that espresso and coffee came from the same bean. I had no basis for the long history behind its cultivation and emergence in the world market. As an avid – and uneducated – coffee drinker, I sought to learn a few things about what I was drinking every morning.

What began as a simple Google search turned into a fascination and eventually, this thesis. My research explores where coffee comes from, how it's grown, affects our health and how it emerged as a staple across cultures today. From Vietnam to Finland, Italy to New York and Philadelphia, I've talked with baristas and locals, drank my fair share of coffee and lattes, all to better understand *why* and *how* people and different cultures enjoy the same daily ritual. My research draws from academic books, newspaper articles, scientific publications, and personal interviews, experience and observations.

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Introduction

“Soy latte for Sarah,” the barista called out at the local Starbucks. I collected my daily indulgence from the counter, added some cinnamon to the white foam and continued onto class. I usually brew my own coffee at home, with beans and roasts from all over the world. But whenever I’m gifted with a Starbucks or Dunkin’ Donuts gift card, I use it up pretty quickly.

Coffee is a ubiquitous part of our world’s culture. It’s the second most traded commodity on the market and in some form or another, over half of the world’s population consumes it on a daily basis.¹ Sometime during the transition between high school and college, when school, work, research and other responsibilities accumulated, I joined that majority and started drinking coffee every morning. I solicited its help in keeping me awake and mentally alert throughout the day, and sometimes the night, to get everything done. And I grew to really enjoy it – the taste, the different roasts, ways to brew and prepare it. It became more of a hobby than a habit or necessity.

But regardless, I was warned against having had started a bad habit. I attempted to argue in coffee’s favor but realized I myself didn’t know much about it other than that it kept me awake, was delicious and was responsible for depleting my meal plan. I used to naively believe coffee solely existed in the form of Starbucks or Dunkin’ Donuts and didn’t even know espresso and coffee come from the same beans. As an avid – and uneducated – coffee drinker, I sought to learn a few things about what I was drinking every morning. A simple Google search resulted in a little less than a billion results in 0.39 seconds. I had no idea where to begin but the vastness of the subject spurred my fascination.

My early research, combined with my personal observations of the part coffee played in cities and countries I had traveled through, made me realize there is much, *much* more to the dark brew than a daily pick-me-up or source of caffeine. I sought to understand where coffee came from, how and when did we as humans start drinking it, why did we start drinking it and what does it mean to people throughout the world today?

This research, this thesis, aims to explore the “more” of coffee in today’s world, particularly the role coffee plays in modern cultures and societies. This thesis will address coffee’s biology and its impact on our health, the history behind its consumption and emergence on the world market, and the roles it plays in specific countries throughout the modern world – split between countries that primarily produce and primarily consume coffee.

From Vietnam to Finland, Italy to New York and Philadelphia, I’ve talked with baristas and locals, and drank more than my fair share of coffee and espressos, to better understand *why* and *how* people from different cultures enjoy the same daily ritual. My research for this thesis draws from scientific publications, academic books, newspaper articles, and personal interviews, experience and observations. The first two chapters will examine the *why*, giving a biological and historical context for coffee which provides a baseline for understanding the *how*. The latter two chapters will explore the *how*, investigating the varying roles of coffee in six specific countries, split between producing and consuming countries.

Throughout the course of this thesis, my hope is to impart a deeper understanding and greater appreciation for the coffee world. And I aim to show how something so habitual and seemingly inconsequential to our daily lives has such an entangled impact and meaning on our past, present and future.

Chapter 1

What is Coffee?

The majority of the world consumes coffee, whether on a daily basis or occasion, out of necessity or simple pleasure, or any reason under the sun. Universally, it is our favorite beverage. You could not stroll through a town or city – anywhere in the world – and not find a shop serving a fresh brew. The aroma, caffeine and exciting variability of each cup serve as a basic understanding for why we like coffee so much. Almost every coffee drinker out there understands these basics, but the back-story to each brew is a little less apparent.

For a scaled down version, the life cycle of a coffee bean is pretty simple. Coffee plants are grown on farms, and the cherries are picked and popped open for their seeds. These seeds are washed, dried, roasted, ground, filtered (or dripped, pressed, boiled) and voila! a cup of coffee is born. For the uninterested coffee drinker, this is about as much background needed, so long as the cup reaches their lips, and keeps their eyes open and minds awake. But as expected, there is much more to the process. Attention to detail in every step yields the highest quality brew.

This chapter will explore where coffee comes from, its biology and how it goes from a plant to an aromatic beverage. The chemical components of coffee beans yield knowledge about coffee's impact on our health, for better or for worse. With research drawn from academic texts to scientific publications, this chapter will provide a basic understanding of *why*, from a scientific standpoint, coffee has withstood thousands of years of cultural evolution as we continue to consume so much of it each year.

2.1 Biology of Coffee

The first basic question must be asked: what exactly *is* coffee? A coffee plant, more accurately described as a tree, is a woody perennial evergreen dicotyledon member of the botanical family Rubiaceae. Among the six thousands other species in this family, two specific species under the genus *Coffea* (*Coffea arabica* and *Coffea canephora*) dominate the world's total coffee production.⁹

Coffea arabica, more affectionately known as Arabica coffee, is associated with higher quality roasts while *Coffea canephora*, known as Robusta coffee, is a lower quality, but more common, roast due to its cheaper growing methods and lower market price. Two other species, *Coffea liberica* and *Coffea dewevrei* are grown in negligible amounts, but still produced nonetheless.⁹

Coffee plants are native to the tropical forests of Africa, and thus, are grown in areas throughout the world with similar geoclimatic features, such as Vietnam, Colombia and Jamaica.⁴ Similar climates are found in the “Coffee Belt” countries, areas within ten degrees of the Equator. They produce their best beans when grown at high altitudes in a tropical climate where there is rich soil, plenty of sunshine, moderate rainfall, average temperatures between 60 and 70 degrees Fahrenheit and no chance of frost. Harvest seasons for areas north of the Tropic of Cancer run from December to February while those south of the Tropic of Cancer run from May to August.⁴

Both coffee species, Arabica and Robusta, produce delicious, aromatic, and caffeinated cups of coffee. But the biological disparity between the two species cleaves a significant difference between the optimum growing conditions, taste and chemical composition of each.⁹

Arabica coffee beans grow best in two climates. The first is a subtropical region between 1800 and 3600 feet with well-defined rainy and dry seasons, resulting in clear growing and maturation seasons. Examples of this type of climate can be found in Mexico, Jamaica, Sao Paolo and Minas Gerais in Brazil, and Zimbabwe. The second climate is lower latitude equatorial

regions between 3600 and 6300 feet with frequent rainfall. The heavy rainfall yields two harvesting seasons and requires the beans to be dried artificially since they cannot sun dry. Examples of this type of climate can be found in the growing regions of Kenya, Colombia and Ethiopia.⁴

Arabica plants flower after rain and it takes seven to nine months after flowering for the cherries to ripen. Once they ripen, they fall from the plant. Arabica beans are flat, have a caffeine content of 0.8-1.4% and its brews are typically acidic.⁹ Of the five major pests and diseases that affect coffee production listed by the International Coffee Organization, Arabica coffee is susceptible to four and resistant to one.⁹

Robusta coffee plants are grown at lower altitudes, between sea level and 3000 feet and are more tolerant to warm conditions. They were first cultivated in 1850 in Western Africa as European colonial powers sought to promote its cultivation and use in their home markets.⁴

Robusta plants flower irregularly and independently of rainfall, and it takes ten to eleven months after flowering for the cherries to ripen. Once ripe, the Robusta cherries remain connected to the stem. Robusta beans are oval in shape and contain a higher caffeine content than Arabica beans of 1.7-4.0%.⁹ A typical Robusta brew has bitter and full characteristics. And of the five major diseases and pests affecting coffee plants listed by the International Coffee Organization, Robusta plants are resistant to three, tolerant of one and only susceptible to one.⁹ Their high tolerance to growing variability results in a lower market demand price than Arabica beans. In October 2012, Robusta coffee was listed at \$109.89 per pound in October 2012 compared to Arabica coffee at \$172.37 per pound.⁹ Yet despite cheaper prices, Robusta is ultimately the lower quality bean and not used in quality or specialty coffee roasts.

Figure 1.



Figure 1 displays unripen Robusta cherries.

Both species of coffee beans are filled with copious amounts of antioxidants, carbohydrates, lipids, amino acids, vitamins, minerals, alkaloids and phenolic compounds.⁸ Three of the main bioactive compounds found in coffee beans are chlorogenic acid, caffeine and diterpenes, along with several micronutrients and polyphenolic compounds.⁸ Arabica coffee has lower percentage levels of caffeine, amino acids and chlorogenic acids compared to Robusta coffee, but it does have 60% more total oils.⁷ Recent research studying the chemical composition of coffee has shed light on the continued debate surrounding coffee consumption's effect on health. This will be discussed in section four of this chapter.

In summary, Robusta and Arabica coffee beans vary in their taste, caffeine content, disease resistance and optimum cultivation conditions. The most efficiently cultivated species really depends on natural variations in soil, sun, moisture, slope, disease and pest conditions. Arabica beans command a higher production price and are sought after for specialty and high quality coffee drinks, while Robusta is more commonly traded and consumed. The basic principles and current situation of the global marketplace for coffee is further described in chapter three, outlining the volatile nature of the relationship between producing and consuming countries.

2.2 Bean to Cup: the modern lifecycle of a coffee bean

With a basic understanding of a coffee plant, the next question is: how does coffee go from being a plant to a beverage? The “bean to cup” process varies between countries, farmers and

plantations, so there really is not an exact step-by-step process. However a general standard method from which farmers deviate gives a solid overview of how the process is carried out.

Coffee plants take about three or four years to grow from first planting until they bloom small clusters of white flowers at the axils of the drooping green leaves.⁴ The plants can grow up to thirty-two feet depending on species and growing conditions, but generally they are pruned to eight feet during cultivation to “facilitate efficient harvesting.”⁴ Cherries grow throughout the plants until they ripen and will either fall or remain, depending on the species. The fruit begins as little, hard, green berries, but ripen to dark red and plump cherries. The cherries house usually two seeds, or sometimes only one seed known as a peaberry.⁴

Coffee beans are actually the seeds of a fruit, not a bean by common definition. Coffee cherries are epigynous berries, meaning they develop from an inferior ovary. The anatomy of a coffee cherry is pretty cut and dry. The outer skin of the cherry, the exocarp, covers the mesocarp, a thin layer of pulp, which in turn covers a slimy layer called the parenchyma. The beans are nestled together beneath the endocarp, a parchment-like envelope, and are sheathed by a layer known as the silver skin. Once the cherries are ripe and picked, they are opened for the seeds inside, which are lime green and sticky (see Figure 2).⁴

Figure 2



Figure 2 shows an opened Robusta coffee cherry with its two coffee beans.

Figure 3



Figure 3 shows me holding a sticky Robusta coffee bean in Vietnam.

After cultivating the coffee plants until their fruits are ripe, farmers harvest them either by hand or machine in one of two ways: strip or selectively picked. Strip picked is relatively self-

explanatory in which the plants are completely stripped of all cherries, regardless of their ripened status. The selectively picked method requires much more specialized attention as workers hand pick each tree for its ripest cherries, rotating among the trees every eight to ten days to ensure all the best cherries were picked.⁴ Due to the increased time, money and attention spent on this method, it is generally reserved for finer quality Arabica beans.

During the off-season, farmers must tend to the plants to protect against disease and pests that could cripple their crop. When harvest season rolls around, cherry picking begins in the wee hours of the morning and continues late into the night. If the cherries are handpicked, pickers fill entire baskets or large sacks with ripened cherries and are paid by weight of each basket.⁴

Understandably so, coffee harvesting is not a glamorous job. Farmers and their pickers work long and menial hours in the sun, collecting red cherries in baskets or manning harvesting machines, often yielding barely sufficient wages in underdeveloped countries. Mostly due to the 100 pound minimum of picked coffee required to earn a minimum wage, workers in countries like Guatemala and Colombia bring their children to the fields to help reach each their quotas. An observer of a Costa Rican coffee plantation described the scene: “there were many of them, whole families, ranging from toddlers still unsteady walking, to seniors...used woven baskets a couple of feet deep...they tied these around their waists with ropes. The people work from five thirty in the morning until six at night, seven days a week.”⁴ This kind of lifestyle and reality is often lost on the Western consumer, who doesn't realize these workers will receive less than 1% of what we pay for a pumpkin spiced latte.

In order to avoid spoilage, the cherries must be processed as soon as possible after collection. Depending on the harvesting season, there are two methods to process the cherries: the dry or wet method. In the dry method, the cherries are spread out on large surfaces on patios in the sun to dry, continuously raked, turned over and then covered at night. Once their moisture levels drop to 11%, they are moved to be stored.⁴

In the wet method, a pulping machine separates the skin and pulp from the bean, and the beans are then separated by weight and conveyed through water channels. The beans are further stripped of the parenchyma layer, leaving them with a rough texture. Then they are further dried to 11% moisture levels via the dry method or a tumbler and are now called “parchment coffee.”⁴

Upon further processing to remove the parchment layer from the parchment coffee and the dried husk from the dried coffee cherries, the beans are graded and sorted based on weight and size. According to coffee experts, the bigger the bean, the better quality the coffee. Once graded and sorted, the beans are bagged and exported.⁴

From first being plucked off the tree, it can take up to fourteen days for a coffee bean to be ready for exportation. Once the bean is ready for exportation, it is known as “green coffee.” Green coffee is loaded into jute or sisal bags on shipping containers and sent via freight ships all over the world. As these beans transition from export to import, coffee companies transport their purchased green coffee to roasting facilities.⁴

It is at the roasting plants where green coffee is transformed into the aromatic, dark beans used for consumption. According to coffee experts, the roasting process is arguably the most important step in creating the coffee experience – save the separate serving techniques – because roasting creates the rich, distinct flavors and aromas.³

Roasting involves heating the green coffee beans to different temperatures, up to 550 degrees Fahrenheit while continuously spinning them to avoid burning.⁴ Heating the beans ignites several chemical and physical changes that create each batch’s unique flavor and aroma. The excess water is boiled off, the starches convert to sugars, and the sugars caramelize, giving the beans their golden to dark brown coloring. Then pyrolysis occurs – when the beans pop under the heat, almost like popcorn – and caffeol, an oil, emerges, expelling coffee’s rich aroma.¹ Variances in roasting will change the quality and flavor of each batch. The longer the beans are roasted, the acidity and caffeine concentration levels diminish, while the volume per weight increases.⁴

There are five main types of roasts, each dominating a cultural preference. They vary with required roast times and thus, flavors. The pale roast, preferred in England, preserves delicate flavor oils whereas the medium roast, preferred in America, has a stronger flavor and is mellower. The full roast, preferred throughout Europe, has much stronger flavor with a touch of bitterness and the roasted beans are a dark brown color with a slight oily sheen. The high roast, preferred by the French and Viennese, has a strong bittersweet aftertaste and the roasted beans are shiny black beans with an oily covering. And finally, the Italian roast – also known as the espresso roast – has the strongest flavor and its beans are roasted black to the point of carbonization. As their name indicates, these beans are used in espresso drinks (latte, cappuccino, espresso, macchiato, Americano, mocha).¹

Figure 4



Figure 4 shows a latte from Tallin, Estonia, served with honey and brown sugar crystals.

Figure 5



Figure 5 shows a latte from in Dublin, Ireland, served with packets of sugar in a tall glass.

Once roasted, the beans can be ground through a variety of different grinders and then filtered through water to create the magical cup of coffee. Brewing methods are extensive and unique to certain cultures, resulting in the plethora of options for how one can take his or her coffee.

2.3 How to brew coffee

Like the cultivation process, there is no one-way to brew a cup of coffee. Coffee lovers from every corner of the earth have created a plethora of contraptions, gadgets and methods to extract the flavorful alkaloids from the ground beans. From a regular cup of house blend to a skinny sugar-free vanilla cinnamon café au lait from Starbucks and everything in between, the possibilities for traditional and specialty coffee drinks are endless. But regardless of simplicity or lavishness, when all boiled down to the essentials, there are really only two ways to brew ground coffee: boiling or infusion.¹

The boiled coffee method is most popular in Middle Eastern countries, more commonly known as the Turkish coffee method. The coffee is brewed in a conical brass pot, called an *ibrik* (Turkish), a *briki* (Greek), a *tanaka* (Egypt) or a *rakwi* (Arabia) depending on where it is used.¹⁷ The method involves bringing cold water and a desired amount of sugar to a boil, and then the coffee grounds are added and allowed to boil.¹ Once the coffee foams up to the top, the pot is removed from the heat to settle, and then returned to the heat two or three more times. This creates a dark brown foam on the surface of the coffee, known as the “face of the coffee,”¹ which holds a high cultural significance in the Middle Eastern countries where it is drunk.¹

The boiling method dominated coffee preparation throughout the world until the eighteenth century when people started experimenting with other means to brew. The infusion method of brewing coffee served to retain flavor and produce a better brew overall than the boiling method. Currently, the infusion method brews more coffee around the world than the boiling method, but the boiling method still maintains dominance in the Middle East.¹

Probably the most familiar infusion method in America is filtered coffee, in which, as the name indicates, water filters the ground beans through a cloth or paper. The filter absorbs free oils and catches sediments between the grounds and the cup, leaving the brew with less body than other prepared coffees.¹ However, recent research indicates that these oils, particularly caffestol

and kahweol, increase LDL cholesterol and serum levels – i.e. raises bad cholesterol and clogs arteries – so filtering these oils out of coffee might not be a bad choice for a daily consumer.¹³

Filtered coffee is a favorite in the American household, but other infusion methods are popular as well, like steeping. Steeping involves steeping coffee grounds in water, straining them and then serving them. This method is preferred by the French and utilizes a French Press (also known as a Plunger Plot). And it is probably the simplest infusion method, especially because it doesn't involve replacing filters after each use.¹

Percolation is the favorite infusion method of the Vietnamese, in which hot water passes once through the finely ground beans and into the cup/container. First invented by French Archbishop Jean Baptise de Belloy in 1800, the de Belloy drip pot has inspired several variations, all used today, particularly in Vietnam, France and Italy.¹

And finally, the espresso machine is a globally favored infusion method, delivering high quality coffee at rapid speeds. The Italians derived the espresso machine from the French's filtration pots in the early 1900s. The word *espresso* derives from the Italian verb meaning, "to put under pressure," whereas the coffee is uniquely brewed using steam pressure. The machine underwent several changes throughout the twentieth century, but today's espresso machines yield a "smooth, yet strong, rich, heavy-bodied brew."¹

Espresso can be taken *solo* – just the espresso – usually referred to as a 'shot of espresso'. Or it can be taken as espresso con panna, macchiato, espresso romano, Americano, cappuccino, caffè latte, caffè mocha, espresso breve or lungo, etc. The ever evolving lists of espresso drinks encompass specialty coffee drinks from menus across the world, each characterized by their unique combination of espresso, milk and sometimes lemon or chocolate.

Some specialty drinks do not contain espresso at all; rather they are just fancy coffee drinks. My personal favorite, the French café au lait is simply a brew of strong coffee with steamed foamy milk. The Spanish café con leche is a dark roast coffee mixed with sugar and heated milk.

And the Italian caffè d'orzo isn't coffee at all; it is an espresso substitute made from roasted barley grains. I tried it in Rome a few years ago, and besides the strong earthy taste, I would have never known it was not espresso.

Figure 6

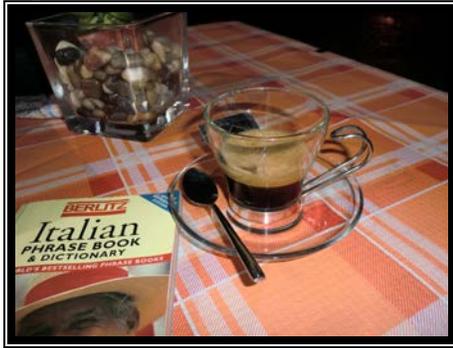


Figure 6 shows a caffè d'orzo, a barley based espresso, ordered in Rome, Italy.

Taking these basic methods of brewing coffee in combination with the many ways of preparation, there is no surprise as to the continuous evolution of coffee consumption and steadily high demand for quality production. From bean to cup, coffee involves labor from all walks of life and countless hours of precision and expertise to produce that one perfect cup. But it is what comes after our lips touch the mug that has modern science and research in a frenzy. Is coffee a harmful indulgence, or could it actually contribute health benefits to our everyday living and future?

2.4 Coffee and Health: the good, the bad, and the (not so) ugly

People have been drinking coffee for hundreds of years. But it was not until recently – within the past 100 years or so – that the effects of coffee consumption on human health have come into question.

When I first started drinking coffee, I heard about how it was going to stunt my growth, turn my teeth yellow, interfere with my fertility, lead to heart problems or cancer down the road, and make me gain weight; I was warned about having started a “bad habit.”

As a society, we drink so much coffee and rely so heavily on its main ingredient: caffeine – also known as “the world’s most popular drug” – to function in our daily lives. The creators of *The World of Caffeine: The Science and Culture of the World’s Most Popular Drug* claim caffeine created and now runs the modern world “both in the sense of making it run better, faster, longer, and smarter, and also in the sense that caffeine has effectively created the modern personality.”¹⁰ Coffee is the world’s main source of caffeine, and through constant consumption, we are keeping our minds running for longer hours and at higher speeds. It’s essential to everyday life, which is why it is also essential to know what it does, or can do, to our health. Hence modern science’s invested interest in answering these questions.

Research today surrounding the real effects of coffee consumption on our health is ever evolving. Scientists continuously discover new effects of coffee on health everyday, with mounting benefits possibly leading it to be actually considered a health food.¹¹

The original stigma surrounding coffee as a host of ills was based off of flawed research, according to Manfred Kroger, a now retired Penn State University food scientist.¹¹ This early research failed to take into account environmental cofactors as “coffee lovers are more likely to do harmful things like smoke and drink alcohol in excess, so coffee was often falsely incriminated,” describes Kroger.¹¹ This is not to say coffee is totally benign, but that with new research and discoveries, it may actually be better for us than we once believed.

So what *is* known regarding coffee’s impact on health? Previously viewed as a vehicle for caffeine, coffee is actually much, much more. As discussed in the first section, coffee is filled with all sorts of bioactive compounds, vitamins and minerals that impact our health.

According to Dr. Rob van Dam of Harvard’s School of Public Health, “since coffee contains so many different compounds, drinking [it] can lead to very diverse health outcomes...it can be good for some things and bad for some things;”¹⁴ which can possibly explain why there is not a definitive judgment regarding coffee’s impact on health. In Harvard’s latest study on coffee and

health, researchers followed participants for 18-24 years, monitoring their diet and lifestyle habits. They did not find any relationship between coffee consumption and increased risk of death from any cancer, cardiovascular disease or any standout cause. Their compiled evidence suggests, “that coffee drinking doesn’t have any serious detrimental health effects,” so for world-wide coffee drinkers, no news is good news.¹⁴

That is not to say that overindulgence cannot have adverse effects. Excess caffeine consumption can cause “caffeinism,” a condition characterized by restlessness, anxiety, irritability, sensory disturbances, tremors, insomnia, or in rare cases, death.¹² While death due to excess caffeine is rare, it has been documented and the lethal dose is estimated to be 10g/person.¹² Drinking so much coffee to the point of caffeinism is obviously not good for health, nor is drinking a high-calorie coffee beverage. A 24-ounce mocha Frappuccino from Starbucks has 500 calories, 25% of a day’s calories for the average 2,000 kcal diet. Consuming these drinks in excess, or even just added amounts of cream and sugar, will lead to unhealthy weight gain and possibly type 2 diabetes. Thus in the long run, these types of drinks can pose detrimental health risks, but coffee itself isn’t the cause.¹⁴

While there are still groups of people who should definitely cut back or eliminate coffee consumption, like pregnant women and those having trouble controlling blood pressure or sugar levels, van Dam states that based on current research, coffee is “one of the good, healthy beverage choices.”¹⁴ Research in past years has linked coffee consumption with protection *against* type 2 diabetes, Parkinson’s disease, liver cancer, Alzheimer’s, cardiovascular disease and liver cirrhosis.¹⁴ However, this is an “active area of research,” and thus many more studies are required to make any sort of conclusive statement regarding coffee’s role as a preventative measure.¹⁴

Recently within the last century, researchers have discovered that coffee is not just a means for caffeine consumption, but rather it contains a multitude of complex compounds that have

varying effects on health. Some of these compounds include polyphenols and micronutrients. One eight-ounce cup of coffee yields 1-5% of RDA of magnesium, 1-2% of the AI of potassium and 6-18% of the RDA of niacin for an adult male.¹⁶ And some of the major polyphenol compounds found in coffee are flavan-3-ols, hydroxycinnamic acids, flavonols and anthocyanidins. These polyphenol compounds have antioxidant behavior, which by definition means they reduce and fight free radicals – an anti-cancer action.¹⁶ Within the past decade, researchers discovered a polyphenol compound called methylpyridinium – almost exclusively found in coffee – that increases phase II enzymes that protect against colon cancer. Colon cancer is listed as the second leading cause of cancer death in the United States.¹⁵ Further research on methylpyridinium and coffee's role on health can lead to groundbreaking and dramatic discoveries on cancer and disease prevention in the United States and around the world.

Interestingly enough, filtered coffee is the healthier method of brewing coffee than boiled method. Coffee contains a plethora of oils, of them being cafestol and kahweol, “potent stimulator[s] of LDL cholesterol levels” (meaning they increase bad cholesterol).¹⁴ When coffee is filtered with paper, the filter traps the oily components, leaving the poured coffee cafestol and kahweol free. Other brewing methods, such as boiling, French press, or Turkish coffee, yield brews much higher in cafestol and kahweol, and thus pose a higher risk to cardiovascular health than filtered coffee.¹⁴

I expect that more conclusive statements regarding how coffee consumption affects human health will emerge in the coming years, as more time and money are spent researching effects in longer-term studies. As for now, coffee drinkers of the world can take solace in hearing the “no news” as good news. We are not poisoning our bodies, as we once could have believed, with our morning wake-up beverage. And who knows, we might actually be doing ourselves a favor in the long term. But as with everything, moderation is key. For some, that could be one cup every morning, for others – like myself – it's a little more.

Chapter 2

Coffee's History

Coffee has withstood the test of time as one of the world's favorite beverage – it supplements our diet, motorizes our brains and drives economies today throughout the developed and developing world. Not surprisingly, its history is quite fascinating. And it gives an insight as to *why* it is still the most globally demanded beverage today.

After unlikely being discovered 1200 years ago by goats, coffee's journey weaves through mankind's greatest triumphs and gravest memories, pervading hundreds of years of cultural evolution. Throughout its history, coffee has sparked religious controversies, prohibition-type movements and human rights dilemmas, playing an integral role in how economies and cultures have shaped and transformed. Today, it rests as the common denominator between cultures, religions, politics, age groups, professions, socioeconomic statuses, and countries. It is touted as the favorite choice of the workingman, "toil[ing] with brain or brawn, [coffee] is a democratic beverage."¹⁷ And we love our coffee just as much as our ancestors did.

This chapter will not only outline coffee's journey out of Africa, but how coffee was able to adapt to evolving cultures and maintain its tenacious presence. As coffee spread and took on new identities everywhere it rooted, its significance and meaning variably developed and solidified. Understanding this unique history can give insight as to *why* coffee holds such divergent roles throughout today's world. And if nothing else, knowing what people went through – and still go through – to keep the coffee bean alive imparts a special appreciation on the modern consumer.

3.1 Khaldi, *Qahwah* & *Qahveh khanehs*

The observations of an Ethiopian goat herder named Khaldi changed the world. Half based in legend, the other half in historical documentation, coffee's story began somewhere in the Ethiopian highlands around 800 A.D. Khaldi noticed his goats roaming the pastures all night, with increased energy and high spirits after eating red cherries. Deciding to try the berries for himself, Khaldi was amazed at their immediate effects – “physical and mental sense of well being!”¹

He dutifully reported his findings to a monk, who then tested the fruit for himself, creating a brew from the cherries' seeds. He was astounded and pleased to discover Khaldi's report on target, the brew kept him awake and alert throughout the night for prayers. Word of this energizing new drink spread rapidly, particularly amongst the religious monasteries. Forbidden to drink alcohol by Muslim law, these monks found the new brew's effects miraculous. It kept them awake and alert for hours of prayers, religious discussion and nightly chanting.¹ Often referred to as “the wine of Islam,” this new drink adopted the name *qahwah*, Arabic for wine.¹⁷ And so wherever Islam spread, so did *qahwah*.¹⁸

As Muslims continued to drink *qahwah* religiously into the thirteenth century, news of this tantalizing brew hit the secular world. Physicians would prescribe the drink for its curative powers and induced energy.¹ Those with full religious authority to drink beer and wine began indulging in this *qahwah* so much so that houses were built solely for its consumption. And thus contracted the birth of the coffeehouse, known in Arabic as *qahveh khaneh*.

These houses began appearing in cities throughout the Near East, particularly in Mecca, the epicenter of holy pilgrimages. Men from the religious and secular worlds frequented *qahveh khanehs*, engaging in intellectual conversations, playing chess, socializing, keeping up with current news; all while enjoying their pot of *qahwah*.¹⁸

They were quickly criticized for being a commune for immoral beings, a place void of religion. In 1470, the first prohibition attempt occurred when the governor of Mecca attempted to ban the sale and consumption of *qahwah* and operation of *qahveh khanehs*. However, public pressure forced the lifting of this ban. And so *qahveh khanehs* flourished as a gathering center for the religious and secular communities, a place where culture, religion and business could comfortably meet. A place centered around *qahwah*.¹

This tantalizingly new beverage piqued the interest of travelers and religious pilgrims from Persia, Turkey, and Europe. While in Mecca, they would try the *qahwah*, experiencing firsthand its full glory. And thus, the mysterious Arab drink found its way out of Arabia.

3.2 Out of Arabia

Qahwah captured the attention, hearts and money of world travelers, who brought the drink back to their respective communities. First to Persia and Turkey, *qahwah* infused its domain throughout the societies it passed.

In 1554, traders brought *qahwah* – called *kahveh* in Turkish¹⁷ – to Constantinople, where it was quickly established as a daily norm. *Kahveh* became so integral to Turkish society that it was grounds for divorce for a husband to refuse it to his wife, a ruling still in effect today.¹ And for the next 150 years, merchants and traders brought this *kahveh* home, with the beans becoming one of the most demanded products on the market.

The Turks, Persians and soon Europeans imported the beans on a regular basis, but never gained access to cultivate their own plants. The Arabs understood the significance and value of coffee and its trade, so they only exported infertile beans, parching or boiling the beans before exporting them. They kept the world's demand for coffee at their doors.¹⁸

By the beginning of the seventeenth century, coffee had infiltrated European markets and much like in Turkey, became a favorite to all classes. Upon its introduction in Rome in 1600,

priests and members of the Catholic clergy viewed the dark, eastern drink as the “bitter invention of Satan,”¹⁸ and appealed to Pope Clement VIII to ban its consumption. Before making a decision, he tried coffee for himself and found that he actually really enjoyed it. He gave coffee Papal approval and indoctrinated it as a Christian drink.¹

Within the ensuing century, coffee reached all major European cities and coffeehouses proliferated as a place of social activity and communication. *Café* to the French, *coffee* to the English, *kaffee* to the German (and Austrians), *caffè* to the Italians, *koffie* to the Dutch, *kaffe* to the Danish and Swedish, *kahvi* to the Finnish, *kophe* to the Russians, *kawa* to the Polish—the list goes on—, coffee quickly immersed itself into the European culture.¹⁷

3.3 European Coffee Culture

England’s love for coffee spread like wildfire. The first coffeehouses started in Oxford, where famous intellectuals and artists gathered to discuss philosophy, innovative ideas, and literature. A merchant by the name of David Edwards brought coffee from Turkey to London, opening the first London coffeehouse at Michael’s Alley in 1652. By 1673 – only 21 years later – there were over 3,000 coffeehouses in London. Even the 1666 Great Fire of London could not stifle the people’s love and demand for coffee.¹

The number of patrons consistently grew, as did the opposition. Women were originally not allowed in English coffeehouses, as the men found in them a “new freedom and safe haven from their womenfolk.”¹ They published a petition against men frequenting the houses, claiming coffee made their men “impotent,” however they found no success in their efforts.¹ Business continued as usual in the London coffeehouses – ideas shared, contacts made, stocks and shares dealt. The coffeehouse in the Royal Exchange Building actually became the first real stock exchange in 1688 (the attendants today are still called waiters).¹

Although unsupported by seventeenth century wine merchants, *café* became a quick favorite in France. After Suleiman Aga, the Turkish ambassador to France, popularized drinking *café* amongst the upper class, small cafes peppered the Parisian streets.¹ Inventors developed and introduced the *cafetière* – a household coffee maker in 1685. Soon the “after meal coffee” became a firm ritual in French homes. By the early 1700’s, the French began steeping their *café* using a cloth filter, a precursor to the current filter coffee system many Americans use today.¹

The Viennese opened their first coffeehouse in 1683, called The Blue Bottle, and added milk and honey to sweeten their *kaffe*. Aristocratic German women added *Kaffeeklatsch* – coffee gossip – to their daily routine, the beginning of the modern notion of a coffee break.¹

And probably the first aggressive driving force of global coffee dispersion, the Dutch enjoyed their *koffie*. They were *koffie* pioneers, first adding milk to reduce its bitter taste, and introducing it to the colonies of New Amsterdam – later named New York by the British. And they were the first to break Arabia’s monopoly of producing coffee seeds – managing to steal fertile seeds in 1687. They planted these seeds on their Indonesian colony of Java – coining the term *java* for coffee.¹ However, their effort to spearhead worldwide coffee growth brought along forced labor and slavery to accomplish the task, a dark trend that would continue until abolition.²

With its emergence throughout the new world and the Dutch’s acquisition of fertile coffee seeds, the competition and popularity of coffee throughout the world exploded during the next two centuries. Innovators created new brewing machines, cultures added unique twists to their brew, the early entrepreneurs jumped at a chance to grow their own coffee and large plantations emerged, soliciting the labor of slaves and exploited workers. With global coffee growth came new opportunities and market expansion, but also universally employed slavery.

3.4 To the New World and Beyond

As a result on diplomatic negotiations, the Dutch presented King Louis XIV with a single coffee seedling, kept on display – and guarded – in the Jardin des Plantes. A French naval officer by the name of Mathieu de Clieu had a vision of using said seedling to create the French island of Martinique as the French Java. King Louis XIV outright denied de Clieu's request.¹⁷

So de Clieu led a midnight raid on the Jardin des Plantes, stole the coffee plant to bring it to the Martinique. Upon a successful heist, he sailed a tumultuous journey – one full of pirates and horrendous storms – to the Martinique with his plant. Water rations were limited and spirits were low during the sail, but de Clieu was so determined to bring coffee to the New World that he shared his personal water ration with the plant to ensure its successful arrival. He planted the seedling in the Martinique in the early 1700's, and initiated coffee planting in the West Indies. That seedling was the first of over 18 million coffee plants that would supply the coffee production of Latin America and the New World in the next 50 years.¹⁸

Coffee spread throughout the Western Hemisphere very quickly. Between British, Spanish and Portuguese entrepreneurs and colonists, coffee plantations were introduced and established in Jamaica, Cuba, Guatemala, Peru, Costa Rica, Venezuela, Colombia, Mexico and Brazil in less than a century. And due to the strong presence and abundance of slavery in these colonized areas, the plantations were able to flourish and succeed very quickly.²

The number of plantations grew in Dutch, French and Portuguese colonies as well. A Portuguese officer received a coffee plant from the French Guinea's governor's wife, which he then began to grow in Brazil – creating the world's largest coffee-growing plantations to date.¹ Slavery and exploited labor “persisted as the preferred method of coffee production in many colonies until abolition, or in the case of Brazil until as recently as 1888.”²

As the growth of coffee production increased exponentially, so did its cultural identity across the world. After the Boston Tea Party, coffee – the alternate beverage to tea – became a

symbol of American patriotism and sure enough, a staple in the American home. The Tontine Coffee House in New York served as the meeting place for auctioneers and merchants, eventually becoming the New York Stock Exchange in 1793.¹ Frederick the Great of Prussia restricted coffee consumption to a select few, forming it as a specialized drink for social hierarchy. New devices such as the percolator and vacuum maker were invented. Scientists developed a way to remove caffeine from coffee, so “one could go to sleep at night.”¹

Companies, warehouses and roasters slowly started to form throughout America and other countries. Coffee was listed as part of soldiers’ rations in WWI and WWII. The colloquial term “cup of Joe” was coined during these wars, as the G.I. Joe’s would spend down time drinking their coffee rations.³ During WWII, employers noticed that employees could work longer – and more efficient – hours if they were given a break to drink coffee during the day. And thus, the “coffee break” was born, a simple pleasure we continue to enjoy today.¹

Espresso bars opened throughout Europe, creating a drink that is more than just a cup of coffee. The Europeans – particularly the Italians – raised the standard. As the quality of American coffee declined, the Europeans crafted the ever-exquisite espresso – playing around with cappuccino and latte.³ They fashioned the specialty drink before the idea of a specialty drink ever crossed our American minds. Yet the American coffee culture to which we are currently accustomed did not appear until the late twentieth century.

And we have Howard Schultz to thank a large portion of that to.

3.5 ‘I’ll have a grande double soy cinnamon vanilla latte, please.’

When Schultz, the architect behind Starbucks, had an idea to expand a Seattle-based coffee vendor’s shop, I doubt he realized the effect he would eventually have on American culture and the world. He took Peet’s Coffee, originally just a vendor of coffee machines and whole beans, literally from the owner’s hands and built Starbucks, a place where the Italian flair

and attention to the perfect cup of coffee met the American need for speed and caffeine. Today, you cannot drive on a turnpike or walk around a city without seeing the dark green mermaid logo.

While Starbucks is not the only coffee shop franchise to exist, it did spearhead the American coffee shop culture that exists today, and remains the largest in the USA. Other chains like Caribou Coffee, Tim Horton's and Coffee Bean & Tea Leaf are runners up in American numbers and continue the coffee shop culture around our cities.

This coffee movement introduced the specialty coffee drink to the West. Before Starbucks, diners and Ma and Pa shops would serve a house roast, black or with cream and sugar. Something like a double hazelnut macchiato simply did not exist in America. But the rise of coffee franchises introduced the specialty drink to America and brought chains to the world once Starbucks went global in the '90's.¹⁹ With several milk selections, syrup bases and additives, there are literally hundreds of possible drinks to try nowadays. And the price is also pretty outstanding too, with a 16-ounce latte running anywhere from \$3.55 to \$9.83 – depending on the country in which it is purchased.¹⁹ Either the coffee is so good or we just need it, because Starbucks and the thousands of other shops are not going out of business anytime soon.

But coffee culture today is not limited to Starbucks in America and how America drinks her coffee. Each country and culture has their own unique relationship with coffee – how they drink it and care for it and more importantly, what it represents to them. Today, issues of exploited labor, pesticides and Fair Trade run rampant throughout the coffee world, while specialty drink prices soar in Western cultures (and we still pay them). This area will be explored in the next two chapters, split between the primary coffee producing countries and the primary coffee consuming countries of the world – each evolving their own affair with the world's favorite brew.

Chapter 3

Producing Countries

From its journey out of the Ethiopian highlands to Arabia and Europe, coffee found its self globally dispersed and integrally emerged in the world's economy. Today, coffee is grown in more than 50 countries throughout the "Bean Belt," an area within ten degrees of the equator with a geoclimate suitable for production. With an estimated 25 million farmers dedicating over 11 million hectares of the world's farmland to grow, produce and export 12 billion pounds, coffee is vital crop on the world market.²⁰ As mentioned before, it is the second traded commodity in the world, and thus directly impacts and frames the livelihoods of millions of people.

To state the obvious, coffee producing countries produce coffee – growing the plants, picking the cherries and processing the beans for exportation throughout the world. To major producing countries, high quality coffee beans represent an income. Mostly all quality beans are exported; in *very* rare occasions can a consumer find high quality coffee beans in the country where they are produced. Yet those beans are readily available in markets and shops throughout major consuming countries. Several complex factors contribute to the success of coffee farmers throughout these countries, resulting in high variability in the beans' quality from country to country, farm to farm and batch to batch. Both production and exportation are extremely involved processes; each of which focus producing countries' relationship with coffee.

This chapter will explore this relationship between producing countries and coffee, examining the complex factors, issues faced and above all, *how* coffee plays a role unique in said countries. The cultural impact and economic significance of coffee will be discussed for three of

the major coffee producing countries: Brazil, Vietnam and Ethiopia, giving a specific look inside *how* coffee is viewed and used in today's world.

4.1 Who's Producing?

So which countries are “coffee producing countries”? By definition, these are the countries located within the “Bean Belt” that grow, produce and export the world's total production of coffee. The “Bean Belt,” an area located 10 degrees above and below the Equator, hosts the only climates suitable for coffee production around the world. There are over 50 countries within the belt that produce and export coffee. Table 1 features the top ten coffee producing countries in 2012 according to data produced by The International Coffee Organization.

Brazil accounts for 35% of the world's total coffee production and produces both species, Arabica and Robusta.⁹ Vietnam is the second leading coffee producing country, producing both Robusta and Arabica. While each country produce both species, Brazil exports more Arabica than Robusta and Vietnam exports more Robusta than Arabica.⁹ To these ten countries, including the many others that produce and export coffee, issues relating to agriculture, environment and labor have heavy impacts on their economies and communities. These impacts can trickle into consuming and world markets with substantial effects.

Table 1

Top Ten Coffee Producing Countries in Crop Year 2012				
<i>Country</i>	<i>Harvest Year</i>	<i>Species</i>	<i># of bags</i>	<i>% of world production</i>
Brazil	April-March	A/R	50,826,000	35%
Vietnam	Oct-Sept	R/A	22,000,000	15%
Indonesia	April-March	R/A	11,250,000	8%
Ethiopia	Oct-Sept	A	8,100,000	6%
Colombia	Oct-Sept	A	8,000,000	6%
India	Oct-Sept	R/A	5,258,000	4%
Mexico	Oct-Sept	A	5,160,000	4%
Honduras	Oct-Sept	A	4,900,000	3%
Peru	April-March	A	4,750,000	3%
Guatemala	Oct-Sept	A/R	3,100,000	2%

Table 1-1 features the top ten coffee producing countries in 2012.⁹

**"A" represents Arabica species and "R" represents Robusta species.*

Simply put, the objective of any coffee farmer is to produce quality coffee beans that can be exported, and in return, sustain the farmer and the workers' livelihoods. But many complex factors contribute to the success, or failure, of every coffee crop. These factors, mostly related to agricultural and environmental variables, affect the quality of each batch, and thus are extremely important tasks for coffee producing countries to manage and tackle to ensure successful production. The best, and highest quality, coffee is produced in higher altitudes with rich soil. Other factors, including, but not limited to, the amount of rainfall and sunshine, variety of the plant, chemistry of the soil, susceptibility and presence of disease, fungi and pests, and the resulting ways the cherries are picked and processed, contribute to the quality of each specific batch.²⁰ As described in chapter one, the two main species of coffee each have specific requirements for their optimum cultivation. Thus, maintaining these requirements is critical in producing a successful crop.

The environment plays a critical role in quality control for coffee producers. For example the Kona coffee of Hawaii is cultivated on the slopes of Mauna Loa, an active volcano on the large island of Hawaii. The combination of the volcanic soil, a cloud canopy providing shade and protection from intensive sunrays, and daily island rain showers, provides the coffee plants with

an ideal environment for natural growth. After careful attention and processing, the Kona blend yields an aromatic medium body cup of coffee; one in high demand throughout the world.¹⁸ The Kona blend thrives on the bolster its environment provides for optimum quality and growth.

In another example, Todd Carmichael, coffee expert and host of The Travel Channel's *Dangerous Grounds*, quickly abrogates a coffee farm's potential to produce quality beans due to the field's natural environment. In an episode chronicling his search for the world's highest quality coffee beans, Carmichael takes note of several factors of the Colombian field's environment that will inevitably detract from the beans' quality. The plants are grown in "industrial amounts" across a wide valley, previously covered by a natural canopy that Carmichael notes was chopped down to provide the plants with sunlight. He explains that by chopping down the surrounding trees, the farmers eliminated the birds' habitat, and thus removing pests' natural predators from the ecosystem. With no predator and with the plants growing so close together, the pests and ensuing disease grow prolifically. Therefore, without even looking at a single bean, he knew the field was loaded with pesticides that ultimately undermine the beans' natural quality and flavor.²¹

In addition to pests reducing quality, certain diseases and fungi can completely wipe out crops and harvests in a given area, resulting in devastating effects for not only the farmers but entire economies as well. In 2012, a disease known as coffee leaf rust reduced the total production of Central America's coffee by 25%, translating into the loss of hundreds of millions of dollars, tens of thousands of jobs and thousands of farmers losing their farms.²² Leading researchers, companies and experts came together in early 2013 to combat the disaster and determine best practices to avoid it from occurring in the future.²² In countries like Burundi, Ethiopia and Rwanda, where coffee exports account for over 25% of the countries' total export earnings, a disease epidemic could crush their economy.⁹ To coffee producing countries,

maintaining environmental conditions for quality production is crucial to their economies and the livelihoods of their people.

Along with managing environmental conditions, coffee producing countries deal with issues relating to labor conditions as well. Whereas most large coffee plantations and companies will grow, process and export their own beans, selling at the market price set by the New York Coffee Exchanges, small farmers are much more vulnerable to exploitation. These small farmers sell beans to middlemen, known as coyotes, who buy beans at well below market prices, shortchanging farmers and keeping high percentages for themselves. Through this type of exploitation, farmers and workers do not get paid high enough wages to cover costs of production, thus continuously revolving the cycle of poverty.²⁰

Working conditions on coffee plantations, as briefly described in chapter one, can sometimes be nothing more than abysmal. Coffee picking and processing requires long, tedious hours in the hot sun. For example, some Guatemalan coffee farms demand a quota of 100-pounds of picked cherries a day to earn a minimum wage of the equivalent of less than \$3. To meet this prohibitively high quota, workers bring their children along to pick cherries in the field.²⁰ These are just two small examples of labor and child exploitation that exists within the coffee producing industry.

Organizations such as Global Exchange, Fair Trade USA and Equal Exchange formed to combat exploitation and use of child labor on coffee farms. By labeling, certifying and promoting farms or companies that did not exploit or allow exploitation in growing and producing beans, these organizations ensure consumers make responsible decisions in purchasing their coffee.²⁰ Fair trade initiatives are growing throughout the consuming world, spreading awareness of human rights violations and slowly decreasing its presence throughout the coffee producing world.

4.2 Country Focus: Brazil

The largest country in South America and fifth largest in the world, Brazil is known for its famous beaches, exotic wildlife, beautiful people and unequivocally: coffee. Brazil's population is just over 200 million and the official language is Portuguese.²³ Once a large colony of Portugal, Brazil achieved independence in 1822 and saw various different types of governmental rules until 1985 when civilian rulers took power. Coffee exporters accounted for one of those rules, politically dominating the country. From its first introduction in the eighteenth century, coffee has taken an essential and integral role in Brazil's history and economy. Today, Brazil remains the leading coffee exporter in the world, accounting for over 30% of the world's total production.²³

During its early days, coffee competed with sugarcane for Brazil's most exported crop, but quickly rose to number one during the nineteenth century once sugarcane lost importance on the world market. In 1840, Brazil became the world's largest coffee exporter, a title it holds still today. The wealthy coffee plantation owners, dubbed the "coffee barons," detained economic and political power in Brazil, determining presidential elections and ruling the upper echelon of society. Money from coffee exports fueled the country's rapid growth in banking, infrastructure, transportation and industrialization. Upon the 1888 abolition of slavery, coffee production almost collapsed until the government facilitated European immigrants to work the fields. The Great Depression of 1929 had devastating consequences on the Brazilian coffee market, ending the Coffee Era of Brazil and relinquishing the coffee barons of their powerful influence.²⁵

Nonetheless, coffee remains a huge part of the modern Brazilian economy and culture. The industry spans 13 Brazilian states, with the largest presence in the states of São Paulo, Minas Gerais, Rio de Janeiro, Espírito Santo, Bahia, Paraná and Goiás. Due to higher demand of specialty, and higher quality coffees, Brazilian growers have focused more attention to producing quality Arabica beans. Their largest buyers are Germany, United States, Italy, Japan and Belgium.²⁵

And uniquely enough, Brazil is not only the largest exporter of coffee, but also one of the largest consumers. Their total consumption is only second to that of the United States.²⁶ Coffee is the most daily consumed product of Brazilians over the age of 10, translating into 79.7 liters of coffee per individual per year.²⁵ But the internal market thrives on the worst of what's produced, as higher qualities are fated for exportation. A local Brazilian would find it absurd to spend more than 2 BRL (Brazilian Real) on a cup of coffee, about \$0.89.²⁶ They take their cups – called *cafezinho* – strong, presweetened and black; although options are available, like *Carioca* (“Rio-style” with added water), *media* (with milk) or *pintado* (only a few drops of milk).²⁶ *Cafezinhos* are usually complementary after a meal and Brazilians usually sip several a day. Espresso on the other hand is never complimentary, and therefore are usually better quality.²⁶ Regardless of how Brazilians take their coffee – a drop of milk, no milk, steamed milk, espresso – sugar is without question. Maybe because of the lower quality beans consumed in country, Brazilians like their coffee *hot* and *sweet*.²⁶

4.3 Country Focus: Vietnam

Recently new to the list of coffee producing countries, Vietnam quickly grew its total exportation number to become the second leading coffee producer in the world. Their emergence on the global coffee market forever changed the industry, driving competition and demand. The easternmost country on the Indochina Peninsula in Southeast Asia, Vietnam is the 13th most populous country in the world with just over 90 million people and the official language is Vietnamese.²³ Today, Vietnam is a one-party Communist state with one of the fastest growing economies of Southeast Asia and “sights on becoming a developed nation by 2020.”²⁴ And their coffee sector is supporting that goal.

French colonists first introduced coffee to the region in the nineteenth century, growing varieties in the central highlands. Almost a century later, led by Viet Minh leader Ho Chi Ming,

Vietnam claimed independence from France and catapulted into over three decades of war. Along with uprooting Vietnam's infrastructure and landscape, these wars severely disrupted Vietnam's coffee production.²⁷ After the wars, the government and development agencies propelled vast coffee-growing programs throughout the country to lead the recovery process. These efforts proved effective as in just two decades post-war, Vietnam became the second leading total coffee exporter and leading Robusta exporter in the world.²⁷

Today, Vietnam's coffee production generates an income of more than \$1.5 billion and represents about 3% of the national GDP, providing a livelihood for around 2.6 million people.²⁷ The volume of coffee produced in Vietnam is astounding, but quality is lacking. Small family-run farms operate the majority of Vietnam's coffee farms with little to no regard for the environment (heavy use of agrochemicals, over-irrigation, monoculture, etc.), driving quality low and compounding effects high.²⁷ During the time after the war, coffee farms and production grew at such fast rates that general infrastructure and best practices did not keep up, which leaves uncertainties to the Vietnamese coffee future.²⁷

Vietnam produces generally low quality Robusta coffee beans, as a result of species variety but also poor cultivation practices. These beans are mostly used in instant coffees and generic house blends. Vietnam's natural geoclimate features make it an optimum region to grow coffee, and potentially high quality coffee as well. The government, global companies like Kraft Foods and Nestle, and conservation agencies have all invested serious attention to growing Vietnam's coffee sector in a sustainable manner.²⁷ It is a slow, but achievable goal; one that will not only grow Vietnam's own development, but also ensure quality beans to the consuming world from one of the leading producers.

Much like Brazil, most of the coffee grown in Vietnam is exported, leaving about 5-7% staying in country.²⁷ And that small percentage permeates all aspects of society, serving as a daily ritual of every generation. Infused with French colonial influences, the Vietnamese have taken

coffee brewing and mixing to art form. Served hot or cold, Vietnamese coffee, cà phê, is served through a metal cup and filter device, known as a *phin*, placed on top of a small serving cup (see Figure 6). The finely ground beans are pressed into the *phin* with steaming hot water, dripping onto a bed of sweetened condensed milk coating the bottom of the serving cup. After ten minutes of allowing all the water to filter through, the coffee and thick milk are mixed together to create the most delicious and magical cup of velvety coffee I have ever tasted.

Figure 7



Figure 7 shows a cup of hot cà phê in Da Lat, Vietnam.

And the process of brewing and enjoying Vietnam mirrors the relaxed nature of its people. Coffee in Vietnam “is meant to be savored, not carried in a cup-holder to work. It’s a gourmet and relaxing experience...That’s why it is unique in the world. It isn’t just the coffee. It’s what it means to people in their lives,” explains Len Brault, CEO of Heirloom Coffee.²⁸ In Vietnam, drinking coffee represents a reflection of the self, whether for socializing, relaxing, meditating, or pure consumption.

Sold anywhere from roadside stands to swanky restaurants, cà phê “imbues a sense of social decorum” to all generations in Vietnam.²⁸ The iced coffee with milk, cà phê sữa đá, is a local favorite, sold pretty much everywhere and enjoyed several times a day, at all hours of the day. And though they may be small in size, each cà phê sữa đá is a jolt of caffeine like none other – which adds to the reasoning for why the Vietnamese *sip* each cup rather than *drink* their coffee.

At a roadside stand on the way to the Mekong Delta from Ho Chi Minh City, I bought my first cà phê sũ'a đá for 10,000 Vietnamese Dong (about \$0.50). When asked “Why sweetened condensed milk?” the vendor cocked his head and paused before answering in slow English, “I guess because we did not have access to cow’s milk at some time, so we used sweetened milk. Makes for a good coffee. It’s good, no?” He smiled at me as he concluded his thought. Vietnamese coffee is good. It’s sweet, it’s strong, and it’s nothing like I’ve ever tasted before.

4.4 Country Focus: Ethiopia

Land of the legendary Khaldi and birthplace of the world’s favorite beverage, Ethiopia preserves its unique cultural heritage surrounding coffee. Ethiopia is Africa’s oldest independent country, maintaining its freedom from colonial rule save a five year Italian occupation from 1936-1941. And it is the second most populous African country with about 93.7 million people, and has several official languages including Oromo, Amharic, Tigrayan, English and Arabic.²³ The economy thrives on agriculture, with 46% of the national GDP and 85% total employment resting in the sector.²³ With coffee as the major export crop, its success holds a heavy importance on Ethiopia’s economy and well-being as a whole.

Coffee exports account for 30% of Ethiopia’s total export-earnings, which brought in around \$528 million in 2012.²³ Their production is split into four different systems: forest coffee, semi-forest coffee, garden coffee and plantation coffee. From the country’s naturally optimum growing conditions and diversity of systems, Ethiopia produces some of the world’s best coffee varieties.⁹ Such Ethiopian varieties, like Harrar, Sidamo and Yirgacheffee are esteemed as the world’s finest coffees, with unique flavors and aromas that distinguish them from other quality varieties.³⁰ The quality of Ethiopia’s beans draws buyers half-way across the world to secure and build relationships with farmers to bring the very best of the best back to the consuming world.

Except unlike most coffee producing countries, Ethiopia does not export all of its high quality coffee and keep a small amount of low quality beans in country; they split their supply 50/50. Half of the very best beans go to the consuming world, and the other half stays in Ethiopia, enjoyed by its people.⁹

Coffee to Ethiopians is much more than an enjoyable beverage, “it’s a matter of national security.”³⁰ The money generated from its exportation enables the country to buy weapons and medicine. The government regulates the coffee industry, making sure all the very best beans are exported to secure and retain buyers and international interests.³⁰

In addition to matters of financial and national security, coffee strikes a chord with Ethiopian culture. Wondassem Meshasha, the owner of a coffee shop in Addis Ababa, explained how coffee is tightly woven in the hearts of all Ethiopians. “It’s just the sense of belonging. It’s ours, we drink it, it’s produced here, we don’t import it, so I think that satisfies everybody...in a sense, you can say coffee and Ethiopia go together.”²⁹ On average, Ethiopians drink four cups of strong Arabica every single day, at home or at an outside shop.²⁹

Drinking coffee in Ethiopia traditionally involves a coffee ceremony, consisting of three rounds. After a woman prepares the coffee for several minutes, the first round, *abol* in Amharic, is poured into miniature cups and everyone drinks. The second round, *tona*, and third round, *baraka*, can be broken up by gnawing on roasted barley. After three rounds, feelings of overcaffeination abound.³⁰ This ceremony ties familial bonds closer and creates a strong sense of belonging, almost resembling that of a religious sacrament.²⁹ And it is deeply revered in Ethiopian culture. Yohannes Assefa, an Ethiopian lawyer who helped establish the Ethiopian Commodity Exchange, explained, “People will go hungry rather than give up their daily coffee rituals.”³⁰

To Ethiopians, coffee represents a national history dating back to the tenth century that permeated throughout the world. In Ethiopia, coffee ignites a deep and rich cultural heritage. And

in the country, it is ubiquitous; “at home, in a coffee shop, on the road, hotels, restaurants, everywhere, you’ll find a cup of coffee.”²⁹

Chapter 4

Consuming Countries

In one form or another, over half of the world's population consumes coffee. The delicious aroma, tantalizing taste and energizing effects drive people from all walks of life to brew or purchase his or her individual cup of coffee. As described in the previous chapters, the methods for brewing and drinking coffee are countless, and the processes for production, variable and complex.

All aspects of growing, processing, exportation, and sustainability of coffee production exist to support one universal goal: global consumption. The coffee industry is simply a supply and demand business. The coffee producing countries supply what the consuming countries demand in terms of quality, amount and variability. Whereas the producing countries must manage variables in keeping their harvests healthy and fruitful, and tailoring to the needs of the demand, consuming countries must build relationships with the farmers, create their demands based off the consuming markets and nowadays, elicit beans from sustainable and fairly traded sources.

With the exception of a few, almost all countries in the world import coffee beans from somewhere in the bean belt. And part of that few includes countries that produce their own beans, like Ethiopia, leaving a majority of the world in the category of a “coffee consuming country.”⁹ Due to environmental limitations, only a certain number of countries throughout the world have a climate to support coffee growth. Therefore, this thesis will focus on the countries that consume the most amounts of coffee each year.

This chapter will explore the relationship between coffee and the major consuming countries in the world, examining what drives these countries to devour so much coffee each year and *how*

coffee plays a role in their societies. The cultural impact of coffee will be discussed for three of the major coffee consuming countries: Finland, The United States and Italy, giving a specific look into *how* each of these countries views and uses coffee in today's world.

4.1 Who's consuming?

Coffee is a \$100 billion dollar a year industry, directly affecting the lives of millions of people on a day-to-day basis. While 90% of all the world's coffee is produced in developing countries throughout the Bean Belt, the major consuming countries are industrialized nations, ones that strictly import beans and have a cultural flair for the romantic nature surrounding coffee.³¹ In fact, Brazil is the first major producing country to appear on the list of consuming countries, ranking at number 10 tied with Greece. The economic impact and cultural significance of coffee in consuming countries contrasts those of producing countries.

Whereas coffee accounts for major exports, source of employment and GDP generation in producing countries, it represents small and local business growth in consuming countries as well as the introduction and proliferation of large chains such as Starbucks and Tim Horton's throughout the Western World. In a cultural context, producing countries focus more on exporting their best beans than enjoying them. Even Ethiopia, the producing country with the strongest intrinsic connection to coffee, exports its best beans as a means to generate revenue and national security. Consuming countries enjoy these top quality beans and romanticize the coffee experience.

The European Union as a whole imports and consumes more coffee than anywhere in the world, as shown in Table 2. But the EU does not have a climate to support coffee growth – at all. In terms of total coffee consumption, only two of the top five countries have a climate to support coffee production. And of those two, The United States only has limited areas in which coffee can be produced, such as the Hawaiian Islands and Puerto Rico – and these beans are not exported.

Table 2

Top Five Total Consuming Countries in 2012		
<i>Country</i>	<i>Total Consumption*</i>	<i>% of World</i>
EU (27)	44,500,000	31.4
United States	23,300,000	16.44
Brazil	20,760,000	14.65
Japan	7,050,000	4.98
Russia	4,900,000	3.46

Table 2 shows the top five countries that consume the most total amount of coffee in 2012.³²

*Total consumption is in 60-kilogram bags.

The top total consuming countries, displayed in Table 2, account for the countries that import or consume the most bags of coffee per year. After splitting the EU by the 27 separate countries, the United States leads the pack as the most consuming country. In fact, Americans consume about 400 million cups of coffee every day, meaning the USA consumes more coffee in total every year than any other country. But breaking down the numbers to *per capita*, Americans do not drink the most coffee.

Table 3

Top Ten Consuming Countries Per Capita in 2012	
<i>Country</i>	<i>kg/person</i>
Finland	12
Norway	9.9
Denmark	8.7
Netherlands	8.4
Sweden	8.2
Switzerland	7.9
Canada	6.5
Germany	6.4
Italy	5.9
Brazil & Greece	5.5

Table 3 shows the top ten countries that consume the most coffee per capita in 2012.³²

The Scandinavian countries top the list of highest consumers per capita, as displayed in Table 3. In fact, the United States does not even make the list of highest per capita consumers.

And comparing Table 2 and 3, lists of top consuming countries, with Table 1, the list of top producing countries, it is evident that producing countries are primarily developing countries, exporting their products to industrialized nations.

Yet despite this disparity, coffee shows a great opportunity for economic growth in developing producing countries. And recent trends in consuming countries displays acknowledgement of this opportunity. Within the past few decades, coffee companies, local shops and roasters have initiated Fairtrade movements to ensure the procurement of beans from sustainable sources. As discussed in Chapter 1 and 3, middlemen, plantation owners and large corporations have exploited and taken advantage of coffee farmers and their workers. Fairtrade initiatives focus on paying workers fair wages, teaching best practices to local farmers to optimize quality bean production, and eliminating child labor.³⁷ These initiatives yield results in establishing better environmental care for fields and ecosystems, growing local economies in developing areas, and securing direct business relationships with farmers and buyers.³⁷ Many of the major coffee importing countries have taken significant action with these Fairtrade initiatives.

In consuming countries, the patron drives the demand, whether through personal taste or cultural norms. And this is the demand that drives the entire coffee industry. Producing countries and coffee companies are sensitive to the desires of these consumers. Thus understanding *why* and *how* coffee is used in specific cultures helps predict and ensure the demands. The following three of the major consuming countries have pioneered the art of coffee, each establishing unique coffee cultures but all demanding the same beans.

4.2 Country Focus: Finland

Finland is undoubtedly the largest *kahvi* consuming country per capita in the world. A cold, Nordic country situated next to Sweden and Russia, the Finnish people drink on average five to seven cups of *kahvi a day*. Yet, not a single *kahvi* plant can grow anywhere in the country; the

near-Arctic climate could never support its growth. Being so close to the North Pole, Finland experiences long hours of daylight in the summers that diminish to only a few hours, even minutes, a day in the winters. Just over 5 million people live in the country and Finnish is the official language.²⁴ And unlike its neighboring Scandinavian countries, Finland is a part of the European Union.

Kahvi arrived in Finland during the eighteenth century while the Finns were still under Swedish rule. Originally, the Finns treated it as a medicine more than a beverage. When Europeans began drinking *kahvi* in high volumes, the Finnish upper-class did so as well to keep up with European culture and trends.³³ The Finns went from drinking it only on holidays, to the weekends, to the weekdays, to three times a day at the turn of the twentieth century. Hindered by scattered periods of prohibition and high taxation during the nineteenth and twentieth centuries, the Finns only achieved the status of highest *kahvi* consuming people in the 1970s.³³

Nowadays, *kahvi* in Finland is as much a right as it is a privilege. It is the only country in the world that mandates *kahvi* breaks during the work day.³³ And almost all of Finland's cultural festivities or events involve drinking *kahvi* at some point. Finnish *kahvi* is very light roast coffee; in fact the lightest roast in the world with the exception of one found in Northern Sweden. A very knowledgeable barista at Kaffecentralen, a shop I frequented many times in Helsinki, explained that the chemistry and quality of Finnish water extracts the flavors well from light roasts. Only the highest quality beans and water are used to make *kahvi* in Finland, resulting in a perfect cup every time. Finnish roasters only import washed Arabica beans from Colombia, Brazil, Costa Rica, Guatemala, Nicaragua, Mexico and Kenya.⁹

Figure 8

Figure 8 shows roasting & equipment for sale at Kaffecentralen in Helsinki, Finland.

Figure 9

Figure 9 displays a latte from Kaffecentralen, served with a Monteriva chocolate.

When in Helsinki, Finland's capitol, I spoke with a young Finnish mother over lattes. Elsa brought her one-year-old son, Kasper, and we met at Café Ursula, a beautiful café/restaurant on Ehrenströmintie that runs along the water. We sat in dark brown wicker chairs outside, watching catamarans and sailboats glide across the harbor and sipping our freshly brewed lattes. Elsa said she usually drinks six cups of coffee a day, sometimes two or three cups before she eats breakfast. But as a new mother, her daily *kahvi* consumption had risen to keep up with the daily tasks of taking care of Kasper.

"It doesn't affect my sleep. I'm so tired a lot of the time, I fall asleep easy. I like my coffee though. I need it, so no...I never thought of coffee affecting sleep," she told me in very clear, but thickly accented, English. She explained coffee is second nature to her, almost equivalent to drinking water or eating food. During the winter months, the sun barely rises in Helsinki, leaving the city in utter darkness for the better half of a year, every year. *Kahvi* fuels the Finnish people in the darkness, without coffee, "[the Finns] would sleep through every winter, like bears." This explanation is maybe why other countries with low amounts of sunlight during portions of the year are also high coffee consuming countries, like Sweden, Denmark, Norway and Canada.³²

In addition to keeping the Finns awake throughout the winter, Elsa noted drinking coffee “keeps her skinny,” explaining that her and her girlfriends will sit at cafes all day sipping lattes with their toddlers in strollers, taking walks around the city and shopping. The lattes keep their bellies full and minds occupied. Physical appearance is an extremely important quality, especially for women, in Scandinavian countries. A few years back in Bergen, Norway, a Norwegian man told me that “being anything less than drop-dead gorgeous is the worst thing that can happen to a Scandinavian girl.” Accepting that Elsa is only one of many Finnish women, I could not help but notice the abundance of beautiful and thin women occupying tables at every single café I passed at all hours of the day for the rest of my time in Helsinki. Whether it is a matter of staying awake during the winter, maintaining physical appearance, continuing cultural traditions or exceptional quality, the Finns love their *kahvi*.

4.3 Country Focus: United States

The world’s “foremost economic and military power, with global interests and an unmatched global reach,” the United States imports, in total, the most coffee in the world.²⁴ Small amounts of coffee is grown and produced in the United States – the Kona coffee of Hawaii and select roasts in Puerto Rico – however these beans are not exported outside the USA. With a population of over 300 million, the USA symbolizes opportunity and prosperity, both of which are aptly reflected in the American coffee industry.

As discussed in section one, Americans import and drink the most total amount of coffee each year. Although they do not drink the most coffee per capita, Americans have spearheaded the coffee shop culture and launched its popularity throughout the world, emerging into new markets for coffee growth and emphasizing need for sustainable growth practices and procurement.

In the early nineties, Howard Schultz had a vision to bring the Italian coffee affair to the United States, creating a romantic experience in which people could enjoy specialty drinks and coffee outside the home. It took a few years to turn his vision into reality, a reality today we call Starbucks. Before Schultz and Starbucks, Americans enjoyed their coffee at home, in restaurants or in diners. A coffee shop pretty much only sold roasting or brewing equipment and whole beans, never actually preparing or serving a cup to the customer. But Schultz saw a niche in the market for a customer-oriented coffee experience and brought it to life, igniting the coffee shop culture ubiquitous in America today.³⁴ As a disclaimer, this is *not* to say that Howard Schultz and America created the coffee shop culture worldwide. Coffee shops have been in existence for nearly 500 years.⁶ He simply introduced and ignited the coffee shop experience in the United States, where the culture flourished and expanded into chains and locally owned shops.

Today, coffee in the United States “is more than just a beverage – it’s an iconic product rich with brand values and important social and cultural associations. And that’s to say nothing of the caffeine.”³⁵ The coffee industry in America grows prolifically, in avenues from coffee shops and chains to brewing equipment and faster serving technology. Coffee shops have a 7% annual growth rate in the US, with new stores opening everyday.³¹ In New York City alone, there are just over 1,700 registered coffee shops in 2013 compared to 525 in 2005.³⁶ These coffee shops house the American coffee culture, a balanced combination of the relaxed European way and the North American need for speed.

The American coffee culture represents quick but tailored service, surrounded by an ambiance cultivating creativity, intelligence and socialization. In an effort to appeal to the fast-paced nature of American society, consumers regularly purchase their coffee “to-go,” generally in a cardboard cup stamped with whatever applicable logo. But I found that whenever I frequented coffee shops outside the United States other than a Starbucks, I always had to specifically ask for a to-go cup, something I found an oddity compared to US shops. And even so, I was not always

provided with one. But in America, to-go cups are abundant, possibly even more so than in-house mugs, facilitating an “on-the-go” service comparable to the swift and efficient nature of American society in general. But the enticing and romantic aspects of American coffee culture rest in the ambiance of the space provided.

Without even realizing, I spent the better portion of my college years sitting at a coffee shop, whether socializing with friends, writing a paper, meeting a professor or reading a book, sometimes not even drinking coffee! Coffee shops consistent with the American coffee culture exude a homey-feel, a place of welcoming, intellectual stimulation and creativity. Observing locally owned shops, like Saint’s Café in State College, Pennsylvania or The Grey Dog in Greenwich Village, New York City, I noticed the tables were always filled college-aged students to elderly folks, writing on a laptop, reading a book, socializing with friends or in deep conversation. Culturally, coffee shops expose a niche that any age, gender or profession can fill.

In recent years, the Fairtrade and responsible sourcing initiatives have become synonymous with American coffee culture. A social movement to provide local farmers in developing countries with better working conditions, sustainable production and best practices, Fairtrade certified coffee is the “fast growing segment of the American specialty coffee market.”³⁷ Certified coffees are sold in mainstream supermarkets as well as through programs and initiatives with big coffee companies, such as Starbucks, Kraft Foods, Nestle, Sara Lee and Proctor & Gamble. In a cultural era of “going green” and making responsible consumer choices, Fairtrade not only provides local farmers with better opportunity, but directly appeals to modern American consumer interests.³⁷

Within the last two decades, more and more coffee roasters, shops and chains have opened with a sole focus on sustainability and Fairtrade. Two of these roasting companies have gained notoriety from a devoted customer base for sustainable and direct sourcing, precise attention to detail and commitment to creating the coffee experience. Intelligentsi, a Chicago-based coffee roasting company, and La Colombe Torrefaction, a Philadelphia-based coffee roasting company,

are two examples of such companies that directly source their beans from farmers all over the world. Todd Carmichael, co-founder of La Colombe Torrefaction, hosts a Travel Channel television show called *Dangerous Grounds* of his journeys throughout the world in search for the highest quality beans. Both companies have a handful of cafes scattered throughout major cities, but provide beans for thousands of retailers all over the United States, gathering a strong customer fan base and pioneering the American coffee culture.

From global corporations to smaller scale roasting companies, the United States treasures its coffee culture, tailored to the efficient nature, appreciation for individualism and creativity, and socially responsible aptitude of modern American society.

5.4 Country Focus: Italy

Nestled between the Adriatic and Mediterranean Seas, Italy is the land of the arts. Its people propagated the Renaissance and produced works of art, sculpture, opera and architecture second to none and still revered today. And this native creation of arts translates into their passions, most notably food and drink, and more specifically: espresso. The world-famous espresso, enjoyed in coffee shops throughout the world, is the brainchild of Italian engineers and an integral part of Italian culture and society.

In 1901, Luigi Bezzera patented the espresso machine simply out of impatience.³ Aligned with Italian culture, he became impatient waiting for his coffee to brew and derived a machine that would produce a high quality cup of coffee at a quicker speed. He sold the patent four years later to Desiderio Pavoni, and after several ownership turnovers and minor tweaks to the machine, the modern espresso machine was born in 1948.³ *Espresso* machines *express* water through coffee at high pressures *expressly* for the customer: high quality at high speeds. Italians began to play with espresso, first adding some steamed milk, creating the cappuccino named because the color resembled that of a Capuchin's monk's habit.³ The rest is history.

Espresso machines take very dark roasted beans, of both species, with a very fine grind. And the distinct flavor, quality and taste of each espresso depend on multiple variables. These variables include everything from water chemistry, quality of beans, level of roasting, time since roasting, time since expelling, size of grinds to the types of grinder used and everything in between.³ Crafting an Italian espresso is truly a work of art.

Per capita, Italians consume 5.9 kilograms of coffee (Table 3) per year, and this number is increasing. Italy primarily imports high quality coffee beans from Brazil, Vietnam and India.³⁸ One of the most dynamic sectors in Italy's food and beverage industry, coffee accounts for over 700 companies, employing about 7,000 people in roasting and serving.³⁸ While several large companies dominate the Italian coffee market, there is a significance presence of local brands and shops tailored to the consumer: "Italians know coffee and expect high quality flavor."³⁸

These local brands have a niche in Italian society and a high demand for knowledgeable baristas. Unlike in the United States, a barista in Italy is "not considered a second-rate job."³ They specialize in understanding their clients, earning a good salary and generally stay at the job for life – a barista is a respected profession in Italy. A barista learns how his or her client – i.e. coffee shop patron – takes his or her espresso, a much more complex process than ordering a cappuccino. If the client drinks the espresso like a shot (all in one sip), then the espresso needs *ristretto*, meaning less water. Or if the client likes to sip the espresso, then it could be *normale*, *luno*, *lungetto*, or *lungissimo*, each adding a bit more water. The same options are available for *macchia*, milk.³ Baristas don't earn gratuity but cater to the specific needs of each client, because no matter what they are, "it all averages out."³

Italians drink espresso at breakfast, after lunch and often later during the day as a break from work. Italian children generally drink cappuccino in the morning with breakfast.³⁸ Espresso is dark, sweet and most importantly, *fresh*. The freshness of the Italian espresso adds to the rich quality of each specific cup, catering to the high demand for quality coffee everyday.³ The

American style of coffee, watered down and without precise and careful preparation, rarely exists throughout Italy.³ Asking for an *Americano* at a local coffee bar warrants a few looks. Popular American flavored coffees are considered children's drinks in Italy and are not found on the market. And unlike American iced coffee in which the coffee is iced, Italian iced coffee, *cappuccino freddo*, is espresso with a lot of cold milk.³⁸

Italians created espresso from regular coffee, and mastered it. Created out of impatience, espresso introduced an extremely artistic way to consume coffee. Other cultures manipulated the art of espresso to reflect and tailor to their needs. But espresso in Italy has remained the same, the spiritual domain of the barista and cultural symbol of the Italian passion for art, for food and for life.

Conclusion

When I began researching for this thesis, my understanding of coffee and the industry was minimal at best. I sought to understand *why* coffee is so universally loved and appreciated, looking at its biology and history. Khaldi's discovery over a millennium ago brought the world its most beloved beverage, one that pervaded hundreds of years of cultural evolution, survived prohibitions and currently dominates the modern world market. In understanding *why* we drink coffee, I aimed to explore *how* coffee grew in separate markets and cultures throughout the world and what it means to the modern consumer.

After researching major consuming and producing countries as a whole, and then closely looking at three of each, I noticed the complex role coffee plays in the modern world. As a multi-billion dollar industry, coffee alone directly sustains the livelihoods of millions of people throughout the world. It creates a close cultural identity between nations and its people. As a Western consumer, I never imagined the historical, economic and cultural scale to which coffee owes its presence. And through my research, examining *why* we drink so much coffee and exploring *how* it is used today in cultures and markets, I see the opportunity coffee represents.

In the developing countries with the natural climate to sustain coffee growth, an opportunity exists to cultivate their market share. In addition to Fairtrade initiatives to eliminate the middleman and empower local farmers, best practices and models for sustainable growth can be integrated in these cultures and societies. Like in Vietnam, where the coffee production helped grow their post-war economy significantly, similar countries can learn from their example, following what worked and observing what failed. Coffee represents a tangible opportunity, for growth, for sustainability, for prosperity.

Furthermore, coffee represents an opportunity to learn about other cultures, past, present and future. Among the various issues that people, governments, cultures, religions and professions can argue, coffee exists as a common denominator, something that has taken the hearts and interests of over half the world's population. As a global common interest, coffee has the ability to bring effective, positive change.

Based on the research presented in this thesis, further studies can be carried out to enact and apply this change. The historical, cultural and scientific background to coffee's success can be leveraged to see opportunity to provide turnaround situations in economically depressed areas through coffee production. Future studies can run analyses of these areas, particularly local farms in underdeveloped producing countries, to optimize best practices – improving economic and environmental conditions. The coffee industry has a *real* opportunity to improve the millions of lives that depend on it because of the unlimited demand. Embarking on this research topic, I had no idea of the significant understanding I would come to attain regarding coffee's profound impact on the world, from the past, in the present and for the future.

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ACADEMIC VITA

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Education

The Pennsylvania State University, State College, PA *Graduation: August 2013*
Schreyer Honors College
Bachelors of Arts in English & Bachelor of Science in Biology
Minor in French and Francophone Studies
Deans List: 7/8 semesters

Activities

The Penn State IFC/Panhellenic Dance Marathon University Park, PA
Head of Sales Merchandise Captain, April 2012-April 2013

- Raised public awareness of THON's mission with a team of co-captains through advertising and selling licensed merchandise
- Led a team to operate the online merchandise store including managing inventory, filling over \$180k worth of online orders, and keeping the store's webpage current and accurate
- Created previously non-existing policies and procedures for the THON online merchandising effort
- Defined a customer service protocol, answering questions, addressing concerns and taking care of special requests

President of LiveFour, a THON special interest organization, Fall 2011-May 2013

- Led a group of over twenty students in raising over \$17,000 through various fundraising activities
- Danced during THON 2012 weekend, a 46-hour no sleeping, no sitting dance marathon benefiting the Four Diamonds Fund

Penn State Chapter of Global Medical Brigades University Park, PA
Organization Member, Fall 2011-Spring 2012

- Traveled to Ghana, West Africa on a ten-day combined medical and public health brigade in Winter 2012
- Fundraised \$20,000 worth of medication to offer the local community, performed intake questionnaires and took vitals for patients, shadowed the doctors and dentists, and organized prescribed medication kits and house visits for patients

Work Experience

Malini Home for Girls, Sri Lanka based NGO duties performed via telecommunication
Strategy Development, Branding, Marketing and Research Intern, May 2013 - present

- Collaborated with co-intern to assist the Founder in all ventures in the beginning phase of Home's start-up
- Crafted branding language, synthesized key themes and messages, and edited website for design and content
- Wrote proposals and grants for initiative funds and fundraisers
- Performed market research in regards to merchandising efforts, operations strategies, unique programs and research pertaining to in-country legal applications

Morgan Academic Support Center for Student Athletes University Park, PA
Academic Tutor for Student Athletes, October 2011 - present

- Subjects: Organic Chemistry, Psychology, Nutrition, English, Biochemistry, Statistics, French and Spanish

Office of Residence Life, The Pennsylvania State University University Park, PA
Resident Assistant, Pollock Halls, August 2011-May 2012

- Successfully created and peer led a community surrounding healthy living for over 60 co-ed undergraduate students
- Served as an immediate resource for over 400 residents, including counseling students on various personal and academic issues
- Maintained all bulletin boards, flyers and monthly newsletters with current, accurate and useful information
- Enforced Penn State policies regarding alcohol and drug consumption, respect and diversity, and safety in the hall

Research Experience

Department of Social Sciences at the University Libraries University Park, PA
Bednar Intern, June 2012 – May 2013

- Created written publicity for the Interinstitutional Consortium for Indigenous Knowledge
- Organized and prepared for seminars and exhibits
- Edited seminar presentations and related graphics to accommodate disabled viewers

Department of Biology, The Pennsylvania State University University Park, PA
Research Assistant for Katriona Shea, PhD., January 2011-May 2011

- Classified insects of order *Hymenoptera* to the family level
- Maintained a Microsoft Excel database of identified *Hymenoptera* insects