



DISTINCTIONS

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DISTINCTIONS, the journal of the Honors Program of Kingsborough Community College of the City University of New York, welcomes scholarly articles and creative works that explore important issues in all aspects of humanistic endeavor, not confined to a specific academic discipline. Our editorial staff is sympathetic to a broad range of theoretical and critical approaches; however, the views expressed in articles are solely those of the authors.

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Exploring Agency

For several years, Kingsborough has sent students to Vassar College's Exploring Transfer program, a five-week "academic boot camp" during which students live at Vassar and take two courses, each of which is team-taught by a Vassar professor and a community-college professor. It is a full-scholarship program and is highly competitive, drawing students from as far away as Southern Maine Community College, Los Angeles Community College, and Diné College—a Navajo institution on a reservation in Northern Arizona.

I have taught in the program for three out of the last four years. The first time was a course called *Aryan Complexities: Power and Identity in the European Orientalism of the Middle East and South Asia*, taught with Islamic Studies professor Max Leeming, and the last two years *Feast or Famine: Food, Society, Environment*, with a sociologist and Chair of the Environmental Studies program Pinar Batur. Included in this issue of *Distinctions* are two pieces by Kingsborough students who have participated in the *Feast or Famine* class—Ayana Austin and Shari Houston (huh, what's with the Texas surnames?)—and they reflect their engagement with the issues surrounding our industrial food system, climate change, and the development of personal agency that that course explores. These issues have seemed particularly relevant this semester as the KCC Reads selection for this academic year is Jonathan Safran Foer's *Eating Animals*.

Indeed, the United States has developed a food system within my lifetime that is incredibly inefficient, produces tremendous waste, and has long-range climate impacts that we are only beginning to understand. I have argued in my classes devoted to these topics that I believe that the largest problem behind all of this, and perhaps the largest problem facing humanity as a whole at this point in human history, is the lack of integrity between business and government. As Marion Nestle meticulously documented in *Food Politics* over ten years ago, regulatory agencies are often run by the same people who run the companies that are supposed to be regulated. This is a state of affairs that should be a cause for outrage and yet most consumers, it seems, don't care about such conflict of interest very much. My goal in teaching *Feast and Famine* at Vassar was to help students begin to think about how they might develop some personal agency in the face of obstacles that are overwhelming.

Many of the essays in this issue of *Distinctions* take up this challenge, while others reflect on diagnosing other, often related, problems. All of these pieces, I feel, can give us cause to hope that such far-reaching change as we now need is possible.

Robert Cowan, Ph.D.

Associate Professor, Department of English

Dear Ayana of 2018¹

Ayana Austin

During my final week in the Vassar Exploring Transfer Program, my professors for my Feast and Famine class designed a final assignment that required students to either write a letter to the President addressing the issues that they studied over the summer or to write a letter to themselves discussing the changes they would over a five year period make concerning the issues we studied. I chose the latter.

July 16th, 2013

I hope that this letter reaches you in good health. Over the last five weeks you have acquired an abundance of knowledge on the food system in the United States and the rest of the world. In Michael Pollan's *The Omnivore's Dilemma: A Natural History of Four Meals* you learned that food isn't just what is presented to you at the dinner table. It is much more complicated and intricate than a five minute vegetable sauté purchased at your local Trader Joe's. A poignant quote from Pollan states, "As a culture we seem to have arrived at a place where whatever native wisdom we may once have possessed about eating has been replaced by confusion and anxiety"(1). Pollan's statement reminded you of the many times that you went shopping after you decided to be an informed consumer. I'm sure you remember the hour you spent trying to decide between the bottom feeding tile fish filled with mercury and the grossly overfished Chilean sea bass using the Fooducate app on your iPhone. Now that the five weeks of learning about food has come to an end, you like Pollan are faced with a food dilemma. That is, what will you do with the knowledge that you have acquired? What changes will you make in your own life in order to become a more responsible consumer? How will you share the information you've learned to help educate society?

In this letter I have laid out areas of your life in which I hope you will have become proactive and behaviors I hope you will have done away with as well. First, you

¹ Completed under the mentorship of Prof. Robert Cowan for Feast or Famine: Food, Politics, Environment, a course in Vassar College's 2013 Exploring Transfer program.

must become a more conscious consumer. This will involve more than just checking for the calorie count on a label. I would like you truly to consider where the ingredients came from and how it was made. Pollan writes, “Our bewilderment in the supermarket is no accident; the return of the omnivore’s dilemma has deep roots in the modern food industry, roots that, I found, reach all the way back to fields of corn growing in places like Iowa” (5). You should attempt to be objective when you decide which food you will purchase. This means that you consider the people who go hungry in sub-Saharan Africa.

If you choose to buy corn fed beef because it is cheaper you must recognize that it is a choice being made by you and not one forced upon you by the food industry. Thus in order to be a conscious consumer you will have to look at the bigger picture, that is, the corn fields in Iowa, the seeds sold by Monsanto and the farmers put out of business because of Monsanto seed cross pollination on their polyculture farms (Pollan 16, 17). Consider that the cows, whose beef you digest, are fed corn, which their bodies aren’t naturally designed to consume (Pollan 68, 69). These are issues that you must confront by voicing your opinion through social media, status updates, and by asking others to read the information you have acquired so that they may become proactive consumers as well.

Research should be shared. For that reason my second goal is that you will share every aspect of the knowledge you have gained over the past five weeks and what you will learn over in the five years after this letter is written. For example, while reading *Food Politics* by Marion Nestle, you learned about the “pouring rights” given to soft drink companies, which allows them to sell only their products in every school in a district (Nestle 202-4). I know that the happiness and safety of children is the reason why you are passionate about becoming a teacher. Therefore, you must start now by educating the adults you know. When you get hired at a school you must voice your dislike of soft drink companies by informing your colleagues that Americans get more than 50% of their calories from added fat and sugar in sodas. Tell your students about the bushels of corn used to create the high fructose corn syrup present in sodas and show them the *King Corn* documentary. Pose essay questions that will help them to consider how much agency they do have especially your minority students. This information may not be accepted by everyone but if one person passes it on to another person, you have achieved your goal. I want you to treat knowledge the way the elders in Guyana treat folktales: sacred and important enough to pass on to the next generation. Knowledge is the cornerstone of agency, but after you have acquired and shared that knowledge you must decide how you will act based on what you now know.

Having agency means you have power and you have choice. Thus, when you exercise that power and choice you become an agent for change. The small changes previously discussed do qualify as use of agency, but you must strive to create policies that will reflect the changes you have made in your life on a much larger scale. You must advocate for those who do not have agency, such as the families who need the Supplemental Nutrition Assistance Program (SNAP) in order to survive. Strive to ensure that those who are on SNAP have the ability to be food secure. This will require you to protest, to vote, to call policy makers several times a day or every month, maybe run for office in your neighborhood and attend council meetings in your neighborhood.

Do not just be an observer; during the next five years always take action whenever you can since it is great practice for when you become a teacher. It is a job that requires action. As Nestle states in *Food Politics*, creating policies is difficult because we live in a free market economy which frowns upon the monitoring of people's dietary choices. Thus, don't become discouraged when policies you've advocated for have failed. Know that knowledge is power, so that when you share what you know you will gain more support as you exercise your agency. Always remember that as stated before being able to make a choice is having power. Use that power to further your interest in changing the food system in America.

A few of the habits you currently possess lack conscious consuming, such as buying groceries from Trader Joe's, which has to be shipped several miles from California to New York, adding to the pollution of the earth. These habits should not be shared and do not help in exercising your agency. My main concern is over consumption. You currently live in a world where a billion people go hungry every day. Forty million of those people reside in the United States and are supported by the Supplemental Nutrition Assistance Program (SNAP). In *Agriculture and Food in Crisis* (2010) Fred Magdoff and Brian Tokar state, "all these trends conspire to hide the basic fact that there is enough food currently produced globally to feed everyone in the world a sufficient diet." Knowing that this is possible should create in you a need to think before you buy 10 apples and only consume four while letting the rest rot in your refrigerator. Most of the food produced today is made available only to the western countries since the production of meat, poultry, and fish are most popular. This serves to inform you that you are privileged because the rest of the world suffers in order for you to be able to consume a wealth of meat products (Magdoff and Tokar). If you can choose to eat less industrially produced meat and ask your family to do the same, you will be working for the poor families in the global south who are dependent on the grains used to feed the cows you eat in order to survive. When you consume less and share your knowledge of why you have made that choice, you may implore someone else to follow that trend. Thus when the demand for the product is less, the supply of that product will eventually decrease.

All the goals that I have addressed in this letter to you fall under the umbrella of being a conscious consumer. If you cannot strive to achieve these goals, then you are not completely a conscientious consumer. Therefore, I hope that when you revisit this letter in 2018, you have made decisions that will benefit the world and not just your immediate needs. I know that what I ask of you is not an easy task, but what I have learned this year is how much power I have as a citizen of The United States who was raised in an underdeveloped country. I want you to consider the people you knew as a child who were food insecure because their jobs working for large foreign lumber companies in Guyana didn't put a dent in their bills or allow them to even buy locally grown chicken for dinner. Through the steps that I have laid out in this letter, I hope that you will no longer be a confused consumer grasping at every new idea as though it is gospel. I hope that instead you become much more critical of the information presented to you, and that like Pollan, you become a seeker of knowledge that you will forever question and investigate. This means you may never become comfortable and complacent about how complex every aspect of the industrialized world has become. Finally on the days when all seems lost,

remain inspired and remember the journey that brought you to The United States, and that changed the path of your life. Remain empowered!

Much love,
Ayana Austin

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Why Stay?

A Pre-, Peri-, and Post-Examination of Hurricane Sandy in Brighton Beach¹

Geoff Cahayom

Abstract

In the wake of Hurricane Sandy it might surprise some individuals to know that, despite the significant amount of warnings by the media of the dangers facing New Yorkers, many residents in evacuation zones stayed home. Many New Yorkers were surprised to learn how vulnerable residents of Brighton Beach—and to a larger extent, New York City—were with a category I hurricane. Using ethnographic research, this paper is an attempt to understand life in Brighton Beach leading up to, during and after Hurricane Sandy. More specifically, this paper tries to explain the sorts of decisions people made when they prepared for Hurricane Sandy and the consequences of these decisions for them, their family and their community. Lastly, the paper addresses how a crisis situation, such as a hurricane, reminds us of what it means to be human.

Introduction

On September 9, 2012, Nate Silver, the statistician and writer, who earned a reputation over the last several years for accurately predicting the outcome of American political elections, wrote an article for the *New York Times* entitled, “The Weatherman Is Not a Moron.”² The crux of his article was that, since its inception during the United States’ reconstruction period, the National Weather Service has improved steadily over the years. What used to worry, even frighten, everyday Americans has become just another commonplace weather forecast, albeit a better one. Regarding lightning, for example, he mentions that in 1940 the chance of being killed was 1 in 400,000, whereas today it’s closer to 1 in 11 million. He then writes about one particular

¹ Completed under the mentorship of Prof. Ryan Chaney for ANT 3700: *Introduction to Anthropology*.

² Silver, Nate. “The Weatherman Is Not A Moron.” *New York Times*

weather phenomenon, making the case that forecasters have made the most improvement in predicting its effects: the hurricane. In an ironic twist, several weeks after he published his article, Hurricane Sandy would be the worst hurricane to hit the Northeast.

Nevertheless, it is not as though Nate Silver was the only one to forewarn us about the possibly devastating effects of Sandy. There was a prodigious amount of news coverage leading up to the storm, along with another mandatory evacuation order by New York City Mayor, Michael Bloomberg. But from my experience, many residents in my neighborhood chose to hunker down, myself included, opting to weather the storm. With such a prodigious amount of presumably good forecasting and information, according to Nate Silver, anyway, the question is: why stay?

In this paper I try to answer this question, focusing primarily on the foundation of what it means to be human from an anthropological perspective—specifically addressing cultural adaptations. Cultural adaptations are the cultural decisions we make that are also a function of our abstract thinking.

Conrad Kottak, author of *Window on Humanity*, defines cultural adaptations as:

To cope with environmental stresses we habitually use technology or tools...we turn the thermostat up in the winter, and down in the summer. Or we plan action to increase our comfort. On one level, cultural traits (e.g. air conditioning) may be called *adaptive* if they help individuals cope with environmental stresses. But on a different level, such traits can also be *maladaptive*. That is, they may threaten a group's continued existence. (Kottak 2012)

To go one step further, cultural adaptations are simply anything we do as humans that are not biologically or physiologically taking place within our bodies as a way to live in our environment—that is, we, in trying to maintain our existence in a particular environment, will use ideas and tools to adjust to certain stimuli. Yet, beyond Kottak's distinction between the truly adaptive and maladaptive, I think our ability to adapt culturally can be further specified by categorizing it into two areas: *anticipatory* and *reactionary*. In the former, an individual would plan to culturally adapt based on what he thinks will happen at some point in the future. In the latter, an individual would try to cope with immediate external stimuli as best as possible without premeditated planning.

Throughout, I will delve into the different sorts of adaptations my neighbors and I employed as Hurricane Sandy, later called Superstorm Sandy, swept through the eastern seaboard. Although anticipatory and reactionary cultural adaptations will come into play in different ways, they are not mutually exclusive; there is overlap between the two—one can anticipate a particular event—in our case, a hurricane—unfolding a certain way and make preparations (anticipatory cultural adaptations), but still make further preparations as an added measure; a backup plan. In the strictest sense, then, reactionary adaptations are those in which there is little to no planning involved.

During the storm, there were many instances of both reactionary and anticipatory adaptations. What we will see is that both sorts of adaptations have their own purpose.

The residents who were able to anticipate the effects of the storm and prepare appropriately benefitted. Those who did not anticipate a severe outcome were inconvenienced or endangered; some demonstrated creative, reactionary ways to adapt to the new Post-Sandy environment on a day-to-day basis, although some of these adaptations were maladaptive.

What can we learn from this situation—not just about hurricane planning, but also about ourselves? We will see how the actions of the residents of Brighton Beach are not much different than other residents who stayed home during Sandy—namely, there is something about being human that makes us want to stay home even when we know we are at risk. This notion—risking our lives—speaks directly to our presupposed rationality. We will see how we are not purely rational agents, survival agents—occasionally putting ourselves at risk only to find ourselves fighting to survive. In thinking about our cultural adaptations, we will investigate how one of our five senses is more important than the other four in how we perceive the world how it works in tandem with our cultural adaptations. Finally, we will see how creativity and rationality, reactionary and anticipatory adaptations, all lie on this intersection of survivability, all of which is most evident in a crisis situation such as Hurricane Sandy.

History

In discussing the events that transpired as a result of Hurricane Sandy, I think it is important to understand the history of this community, its people and its contemporary culture. William Engeman established the community of Brighton Beach in 1868, naming it after the coastal community of Brighton in the United Kingdom, after he earned a reputation as a successful businessman during the United States Civil War. Initially, the beach community was a haven for many wealthy city residents, attracting them not only through the sandy beaches, but also through the newly erected Brighton Beach Racetrack. In addition, there were many other features that made Brighton Beach a local attraction: the luxurious Brighton Beach Hotel, constructed around the same time the Brighton Beach Horse Race Track, which was one of the most popular attractions in the neighborhood in the 19th century. In 1907, the Brighton Beach Baths and Racquet Club opened, allowing residents and their guests a place to congregate and entertain for ten decades. By 1923, the city constructed Reigelmann boardwalk, which at just over two-and-a-half miles, extends from Sea Gate to Brighton 14th street.

The construction of this boardwalk also paved the road for further attractions. Moreover, what the boardwalk created was a pathway for residents and guests to access all the attractions, including: The New York Aquarium—New York's oldest aquarium was relocated to Coney Island just to the west of Brighton Beach, from Battery Park in 1957; the Thunderbolt Rollercoaster, which was the predecessor to the more well-known Cyclone rollercoaster; and the Steeplechase Pier. Around the same time, the demographics of the neighborhood began to shift. What was once a haven for affluent city residents began turning into a year-round setting for many families. The *Brooklyn Daily Eagle*, a local newspaper which ran from 1841 to 1955, reported that an apartment building was built where

the former Brighton Beach Hotel used to be³. Many of the bungalows that can be seen in the neighborhood today were built around this time. Today, Brighton Beach is known as “Little Odessa,” named after a city in Ukraine and a place from which many current Brighton Beach residents have emigrated from, starting in the 1970’s. Their numbers increased after the fall of Communism in the 1990’s.

The neighborhood has seen continuous change since it was established in 1868: many of the same attractions that people frequented in the late 19th century were closed down, either because of new regulation laws, as in the case of the horse track, or simply because of business conditions. In 1997 the Brighton Beach Baths closed after one-hundred years. Throughout these decades of great change there has never been a storm or natural disaster to affect the neighborhood of Brighton Beach as greatly as Hurricane Sandy.

Hurricane Sandy Arrives

Mayor Bloomberg decided to order a mandatory evacuation after “forecasters said that flooding from the storm would be worse than originally thought: a storm surge of six to eleven feet was forecast in New York,” according to an October 28, 2012 *New York Times* article entitled, “Panicked Evacuations Mix With Nonchalance in Hurricane Sandy’s Path.” Similar to the hurricane preparations made the year prior for Irene, the Metropolitan Transit Authority shutdown all 486 subway stations and suspended all bus service by 7PM on October 28th, 2012.⁴ The MTA has never shutdown the entire transit system in preparation for a storm prior to the Hurricane Irene shutdown.

As I mentioned in my article “A Post-Sandy World,” (Cahayom, 2013) Mayor Bloomberg developed a tarnished reputation regarding emergency preparedness after New York City was brought to an abrupt halt during the winter of 2010 when a blizzard forced the transit system to shut down as the northeast was buried in snow.⁵ After this blizzard, Bloomberg made it clear to New Yorkers that he was going to give them more warning prior to a potentially threatening event.

Many of my neighbors began preparing for the storm on Sunday, October 28th, adapting to what they thought their environment would be in the event of a storm. The long lines and full shopping carts at my local Stop & Shop was a sign that many residents didn’t consider evacuating. It was slightly after 5 PM on Sunday, and I had a full shopping basket as I waited in line. Many of the other shoppers had their carts full, if not overflowing; they had gallons of bottled water, chips, canned goods, and a surprising amount of perishable: chicken cutlets, ground beef, salad, etc. Stop & Shop, our neighborhood super-market, was located on Ave. Y and East 17th street, which was within Zone A—the zone that was expected to receive the worst of the storm. They were local shoppers. This, made me wonder, are all these residents going to stay home to try to weather this storm again? Why did they think they stock their fridges and stay home to brace this storm?

³ Brooklyn Public Library, “Brighton Beach.”

⁴ Barron, James. *New York Times*, “Sharp Warnings As Hurricane Churns In.”

⁵ McGeehan, Patrick. *New York Times*, “Bloomberg Takes Blame for Response to Snowstorm.”

I, too, had many items in my basket that would spoil if the power were to go out. Filled shopping carts and anxious residents waiting on supermarket lines certainly do not seem like reactionary adaptations. It was clear that we were anticipating some sort of change in our environment, but that, in buying large quantities of perishable goods, it is also evident that our anticipatory adaptations would prove to be less adaptive.

In hindsight, when I think about my waiting in line at Stop & Shop with a basket full of yogurt, a rotisserie chicken, canned tuna, fresh fruits and vegetables, I'm wondering why I thought there would be electricity in the apartment if the hurricane turned to be as the forecasters predicted—which it did. I was not thinking about how the world would sound, smell, feel—and certainly not taste—after a category I hurricane. The only thing that I was thinking about was how the world would look after a hurricane, and how my life would fit into this picture of the world. It was as though my sense of anticipation was directly linked to my sense of sight and foresight.

The *New York Times* reported similar findings to what I observed at Stop & Shop: “If New Yorkers were reluctant to leave, they showed no reluctance to shop, hitting stores and emptying shelves of batteries, bottled water and, in the case of the Fairway market in Red Hook, Brooklyn, kale.”⁶

The shortage of kale during Sandy may not be a trivial piece of information about what is selling at the supermarkets. In the last several years, kale, the green vegetable that is related to cabbage, has been a favorite of many New Yorkers chefs. The *Times* describes it as the new “it” food. There are several articles about kale chips, even a video about how to make the gourmet snack, and one article claimed that kale is the new popcorn.⁷ More than just arousing our taste buds, what does the shortage of kale chips tell us about New Yorkers? If kale is, proverbially, the new popcorn, we as New Yorkers planned to watch Hurricane Sandy through our apartment windows as Con Edison shut off lights; that these windows through which we see the world had become a sort of projector screen for the surreal movie unfolding in front of us.

It is becoming clearer and clearer that throughout Hurricane Sandy, the anticipatory adaptations we made were inadequate. On the one hand, perhaps these adaptations were inadequate because we were not accustomed to preparing for hurricanes. On the other hand, one can argue that we should have been more accustomed to preparing for hurricanes since this was the second consecutive year in which we were forced to evacuate as Mayor Bloomberg shut down the city. Nate Silver would argue that, by and large, we receive accurate information about the severity of these hurricanes so the information cannot take all the blame.

As New Yorkers, we are culturally out of tune with hurricane preparedness because we often watch—not prepare for—hurricanes, and all the misery that accompanies them, on television or youtube. We view pictures of them in magazines and newspapers. It should be no surprise that we had difficulty preparing for an event, which, as a culture, we are so used to watching not experiencing. Moreover, the last time we were supposed to experience a devastating hurricane—Irene—we did not. Instead, most of had an unexpected

6 Buckley, Cara. *New York Times*, “Panicked Evacuations Mix With Nonchalance in Hurricane Sandy’s Path.”

7 Mrs. Green’s World, “Kale Chips: The New Popcorn.”

holiday last year with Hurricane Irene. All of these are elements of why we as a community were unable to make the right anticipatory adaptations.

The flooding began shortly after 8:30 P.M., less than 30 minutes after Con Edison cut off the power. The day before, many building residents moved their cars from our building parking lot, which was an outdoor parking lot located several feet below street level, to the street adjacent to our building. Some said that moving the cars to street level would be the *best* idea in the event of flood. I also parked my car on street level; however, as storm forecasts grew increasingly more severe, I decided to move my car near my friend's apartment in the Midwood section of Brooklyn, where I thought my main concern would be downed trees.

In the hours shortly before the storm surge made landfall, the storeowners across the street from my building were still open for business. The florist, bodega, tacqueria, Chinese take-out restaurant, locksmith, the bakery, and hair salon all closed their doors after the New York Police Department ordered them to close. The bodega owner, after shutting the steel gate in front of his store, began caulking the crevice between the gate and the pavement. Perhaps, he anticipated severe flooding after listening to weather forecasters, or he just wanted to protect his business just in case. Caulking the area in between the gate and the crevice would prove to be an effective adaptation.

Of all the stores—the bakery, the bodega, the Chinese take-out restaurant, the flower shop, the hair salon, and the locksmith—it was the bodega owner who made the best (maybe only) anticipatory adaptation. Why? One plausible explanation might be that the bodega owner has experienced more risk to his business than the other owners. In conducting his day-to-day business he interacts with many more patrons, some who have shoplifted from him in the past, as I later found out. There have been a number of instances in which an altercation near his store resulted in a shooting.⁸ Those involved, either the victims or the suspects, were patrons of his bodega. The bodega owner, in other words, was familiar and accustomed to anticipating a risk to his business. Consequently, Sandy was just another form of a risk for him.

By the time the water from Sheepshead Bay, east of Brighton Beach, and the water from the Beach from the south, made its way to our building, residents went outside to see the spectacle. Some began taking pictures on their iPhones, sending their friends photos or uploading them onto social media outlets such as Twitter and Instagram. Others tried to protect their cars. In one instance, Ryan, a building resident, tied a plastic bag to the end of his car's exhaust pipe. He also tied the rim of his car to the street sign a few feet away. I was also downstairs watching the water make its way into our neighborhood. I also began taking pictures. My friend, Abby, sent me pictures of what the beach looked like from the boardwalk; the high tide had engulfed the shoreline. Yet, despite living in closer proximity to the beach than me, Abby and her brother, walked on the boardwalk. "Why should I be inside watching all this on T.V.?" she said. "Besides, to be perfectly honest, it's free entertainment. You don't know what is going to happen next."

Interestingly, I shared Abby's sentiment. In the midst of all the chaos that ensued,

⁸ Gringas, Bryan, and Simon Prokucecz. "Teen Shot Outside Brooklyn High School."

before it all happened, many of us were anxious, curious; was this in fact the storm of a lifetime that the weatherman proclaimed? I evacuated after Mayor Bloomberg issued a similar warning with Hurricane Irene last year. Although this warning was similar, the initial warnings from officials during Hurricane Sandy were not as clear as the warnings with Hurricane Irene. In speaking to building residents while I was outside during the night of the storm, they were surprised that water made it to our building. Hurricane Irene had left the neighborhood unscathed. My mother and I went to Pittsburg to escape Hurricane Irene and when we returned, we felt as though we had returned from a weekend vacation rather than from temporary displacement. Irene left our neighborhood largely unscathed. It was around 8:00 PM that water from Hurricane Sandy started to reach our building. The sight of the water compelled me to go downstairs and see what was going on. Yes, I knew there was a hurricane approaching, but I still had to see how close I could get to this phenomenon. There were more than ten residents in front of the building.

The lack of magnitude of Hurricane Irene was in part responsible for why many of us decided to stay home during Hurricane Sandy. As one building resident told me a few days prior to the storm, “Nothing is going to happen. They just want us all to leave our homes.” It’s not fair to say that I knew with absolute certainty what my neighbor meant when he said “they,” but I suspected he meant government officials. As I mentioned earlier, I, along with many other building residents thought that Hurricane Irene was made out to be much more than what it actually was.

Nate Silver, in his article, “How Irene Lived Up to the Hype”,⁹ wrote that Irene based on his metrics—he created his own statistic that judged how much media attention a hurricane received—was fairly assessed, and given the right amount of media coverage. By taking the total number of stories that discussed Hurricane Irene and dividing it by the total number of stories in the database that day, Nate Silver derived a number to reflect the ratio of news stories that covered Irene to the total number of stories. By this measure, for all Hurricanes and Tropical storms since 1980, Irene was ranked 10th in media coverage. It’s worth noting only articles prior to the hurricane making landfall were accounted for in his calculation. The nine other hurricanes that ranked higher than Irene were all category 4 or higher (Irene was a 3). In other words, those Hurricanes that were, in fact, stronger were given more coverage. One unsurprising exception was Hurricane Katrina, which ranked 14th in terms of media attention garnered prior to making landfall, yet it was the most devastating Hurricane to hit the United States in terms of fatalities and economic damage. The takeaway is that, hurricanes are, for the most part, given the proper attention they deserve. This then begs the question: did Hurricane Sandy get the proper attention it deserved?

Earlier in the day, Mayor Bloomberg said power in Zone A, which includes Brighton Beach, may be cut due to the possibility of severe flooding. This was a similar strategy used during Hurricane Irene and one that would be considered standard practice in preparing for a natural disaster like a hurricane. It is interesting to note that, although this may be standard strategic procedure, my neighbors and I still did not take this into

⁹ Silver, Nate. “How Irene Lived Up To The Hype.” *New York Times*,

account when we shopped at the supermarkets the day before: many of us stocked our homes with perishable goods, not thinking about the power being shut down. Shortly after 8 PM, Con Edison shutdown the power. Within minutes, the water that was barely a puddle in front of my building turned into a stream that inundated my building and my neighborhood.

There were ten apartment units in my building lobby. When the water began to rise, tenants rushed to higher ground, negotiating dark hallways with their family members taking whatever personal belongings they could carry. Meanwhile, the rest of the tenants were in a surreal trance as they watched out their window as car headlights turned on and security alarms sounded off when the water began flooding the car computer systems. There were a few drivers who tried navigating the streets only to abandon their cars when the water began flooding the car engine. The cacophony of sounds from the car alarms and voices of frantic residents hurrying up the stairs in tandem with disturbing visuals outside transformed our neighborhood into a distraught verisimilitude.

At some point in this distress, I went downstairs to see the lobby. In making my way down one flight of stairs, I saw the superintendent, Saul, standing in the staircase between the lobby and the first floor. Saul's son, Jorge, was helping one of the elderly residents vacate his apartment and head upstairs—the water was just below waist level. By morning the water, which was as high as five feet in some parts of the building, left a thin layer of mud and gunge and a few patchy puddles.

Tactics, Strategies, and Adaptations

As I mentioned previously, many Brighton Beach residents were skeptical of Hurricane Sandy. In my article, “A Post-Sandy World,” I mention how my neighbors thought that Hurricane Irene was an embellished forecast and Sandy was a similar embellishment. For many of these same neighbors they planned their decision making in much the same way—skeptical—yes, they knew that a hurricane was coming, and they certainly did not heed the warning signs, but for different reasons.

If residents are skeptical of authoritative institutions such as the National Oceanic and Atmospheric Administration (NOAA) and elected officials such as Michael Bloomberg, then it would be reasonable to assume they would make little if any anticipatory adaptations, which these authorities suggested. These would include staying with friends and family who live more inland, evacuating to the nearest shelter, or, at the very least, move to higher ground. Just from my experience,¹⁰ I can confirm that this is standard practice for lawmakers and emergency management institutions: explain the severity of the situation by disseminating the information in a number of ways, most notably using television or the internet, and then advise residents in danger zones how they can proceed. However, I find it paradoxical that the weather correspondents on the weather channel, the ones who are informing us of up-to-date weather information, are themselves in these danger zones that they have asked people to leave; at times, they are closer to the center of it all

¹⁰ New York City Office of Emergency Management, “Hurricanes and New York City.”

than the rest of us.

If residents don't take seriously the warning signs presented through media outlets such as television and the internet, why would they not take water at their doorstep as a direct warning sign? Explaining how people think, prepare, act, and live, is, in large part, the foundation to understanding a particular culture—the ethnographer's *raison d'être*. As my friend Abby said, there was something engaging about Sandy. From my personal experience, I can say that seeing that phenomenon—Sandy's storm surge—was in of itself a phenomenon. At 8:00 PM on Monday night we must have thought, more than any time earlier that day, that we were in imminent danger, but we still could not get ourselves to leave. Since we had not seen anything like that before, and the last time we expected it—Hurricane Irene—we did not get nearly the same outcome, our disbelief in combination with our new sense of reality was both stifling and reinforcing. We knew we had to leave, but we could not—and it was not only because it was too late, but because evacuating meant missing out on seeing something that we had not seen before. Looking at this situation on the surface, there was nothing tactical about what residents did; and one could argue that choosing to hunker down when water is at your doorstep is not adaptive but maladaptive. Whether we are these supremely rational agents we claim to be or we have an inflated sense of our own rationality is a tension drawn out when we find ourselves out of our normal sense of reality—in this case, a dire situation such as storm surge engulfing the neighborhood. This notion—of knowing what is right, or rational, and still not adapt seems contradictory to the conventional wisdom that humans are rational agents who are guided by logical reason and calculated planning. There was little evidence of this the night of Hurricane Sandy.

Sandy Aftermath

In the days after Sandy, Brighton Beach life was anything but normal: the neighborhood had no electricity or heat; the streets were lined with totaled cars; effected residents had to find shelter, public transportation was halted; there was a food and gas shortage; and very few residents could use their cellphones due to terminated reception.

The business owners across the street returned to their businesses only to find their livelihoods turned over by the storm surge. Inventory had to be thrown away, and the basements of the stores were still flooded with bay water. For the bodega owner, the caulk saved his store from severe flooding. Despite not having electricity, he was open for business the next day after sweeping away small amounts of water that dampened his store. Regarding the water in the store, “we only needed a broom to sweep it,” the bodega owner told me. “But it could have been much worse. Look at what happened to our neighbors.” It's hard to say if the storeowner knew that the storm surge would flood his store; otherwise he might have closed shop earlier. But he could not anticipate the severity of the flooding, using the caulk as an inexpensive form of insurance. The other, less-fortunate, storeowners were looking for ways to drain water from their stores. The florist used a non-commercial water pump to drain water from his store. The bakery owner asked the florist if he could use the water-pump afterward. But the florist, without saying anything,

shrugged his shoulders, pointing to how slowly the water drained through the pump. In addition to not having electricity or heat, there was a shortage of gasoline, which was attributed to the lack of electricity—wholesale gas suppliers, and retail gas owners need electricity to pump gasoline. Moreover, many homeowners were using gasoline to power their in-home generators, which also exacerbated the gas shortage.¹¹

On Tuesday, October 29, I went to retrieve my car from Brooklyn's Midwood section. Two days before the hurricane made landfall I moved my car several blocks away from my home, but with the constant warnings about the historic surge that many expected, I decided to call my friend, Dave. Dave and I talked about parking my car in Midwood, which was several miles inland, where flooding would not be a concern. After retrieving my car, I saw the landlord of my building. He and a few of his workers were unloading gasoline powered generators from his truck. The superintendent and both his sons were also helping. One of the superintendent's sons asked if I could help find gas to power the generators. I agreed. Not knowing when electricity would be restored, we needed the generators to provide lighting for the hallways.

The gas station owner on the other side of the street was closed for a few days after the storm. He opened his gas pumps on October 31st, to a frenzied line of people waiting to fill their cars and containers with gasoline. Many of the car owners were not from the neighborhood given that many residents in my neighborhoods were car-less. Drivers lined up for several blocks hours before the pumps were opened. Police officers taped off an area in order to create a separate line for patrons who brought gas containers. The containers had to be approved for carrying gasoline. Otherwise, patrons would be turned away from purchasing gas. Patrons with both cars and containers were served their gasoline after paying in cash only. The pump attendant was also dictating prices on a person-by-person basis. After waiting in line for over an hour with a container, the attendant told me that three gallons of gas would cost \$25.00. Although I did not want to pay \$8.33 per gallon of gasoline, I also did not have much a choice. Naturally, I hesitated when I heard him say \$25.00 for three gallons, and just as I was about to ask him why it cost so much, he said, "C'mon, c'mon. Do you want gas or not?" Feeling coerced—and desperate—I obliged. The patrons who purchased gas after me did not seem to mind.

What we see through this price gouging technique that the gas station owner executed is a form of a maladaptive reactionary adaptation. However, from his point of view, this gas station owner is reacting to the current environment. In a gas shortage, it seems sensible to raise gas prices. Conversely, looking at this stunt from the outside in—i.e. looking at it as a consumer or as, say, a regulator from the Better Business Bureau, this station owner's reaction can be construed as slightly unethical or categorically illegal. In either of these last two cases, both are detrimental to his business in the long run: either he will lose customers in the future because they consider him unethical or he will be fined by city and state regulators for price gouging. One could argue that, instead of charging \$8.33 per gallon of gas, he should have charged the current market price, and in so doing, he would have shown that he valued his customers business.

11 Goddard, Nick. Popular Mechanics, "5 Reasons There's A Gas Shortage."

The gas shortage lasted for over a week in many parts of Brooklyn; it finally subsided after the US National Guard helped quell the demand by providing free fuel to emergency vehicles in Floyd Bennett Field.¹² During the shortage, many building residents tried, to no avail, starting their cars. One building resident only tried starting his car several days after the surge subsided. He told me that he wanted to make sure the circuits were dry before he turned on the ignition. Other residents, however, sought rental cars. Many local residents needed gas, but did not want to wait in line for gasoline because they were not guaranteed to get any, and only a few went out of state to forage a stockpile of fuel. Then there were others who tried siphoning gasoline from the totaled cars on the street.

Three days after the storm, two brothers in my building had a clear tube several feet in length and a couple inches around extending from a car's gas tank. Interested, I came over to them and asked what they were trying to do. One of the brothers said he was trying to get the gas from his totaled mini-van because he had been looking all over Brooklyn for gasoline. He needed to drive to work for the rest of the week (he works as a nurse) because the transit system was still down. Both brothers tried repeatedly to get the gas flowing out of the tank by creating suction on the other end of the tube, only to inhale fumes or taste a few drops of gas. They were not the only ones. Over the next few days, I saw many people around my neighborhood trying to siphon gasoline. In one of these instances, a neighbor who worked as an auto-mechanic said that it's not possible to manually siphon gas from the newer cars explaining that newer cars have a ball that blocks the gasoline from flowing without enough pressure, which the older model cars do not have in their gas tanks. Later in the week, while residents were still hoping to start their cars or get the gas from tanks (trying a smaller siphoning tube), someone who was not from our building was going around helping car owners retrieve their gas. The tube he was using was about the same as the other residents, but on the other end of it was a cylindrical silo with a handle to help pump out the fuel. In exchange for helping car owners get fuel, he asked for a portion of the gas.

In essence, this person created a new job for himself in which gasoline was a form of currency. After searching for fuel, these two building residents tried to find other ways and means to attain resources, albeit to no avail. In the case of the man with the manual pump, he was not only able to extract fuel from gas tanks for himself, but he was able to extract fuel for others so long as they agreed to give him a portion of it. The gas station owner and this man who helped get fuel for people show how people are quick to form an underground economy as a reaction, maybe even overreaction, to an unexpected event like Hurricane Sandy.

During another gas hunt a few days later, I went to the BP gas station on Coney Island Avenue after hearing that the station opened for a brief period after getting their gas delivery. As per the new normal, there were several police officers directing patrons to the gas pumps, which were manned by clerks. Three of the four gas pumps were for pa-

¹² Boyle, Christina. New York Daily News, "The city's Sandy relief nerve center: Floyd Bennett Field in Brooklyn, where city workers and National Guardmen have been working to help those hardest hit and still recovering from the storm."

trons with cars. I was standing in line with many others who were waiting to get gas from the fourth pump. Unlike my previous gas run, many of the patrons were able to get gas using non-certified containers. Some patrons carried several one-gallon water jugs, while others had one or two five-gallon jugs that they hauled in a shopping or laundry cart. After one-and-half hours of waiting, one of the patrons in front of me began an altercation with the police officer near the pumps. “You can’t let the cars use our gas line! They keep cutting in front of us,” the patron yelled (Cahayom, 2013). “Look! Nothing says we had to give you a special line just because you have jugs with you,” the officer exclaimed. The gasoline supply was replenished almost two weeks after Sandy made landfall. The United States National Guard also helped ameliorate the gas shortage when they brought in gasoline for official government vehicles and first responders, which helped ease the gas lines at the pumps.

The Federal Emergency Management Agency (FEMA) was stationed in Coney Island the day after Sandy. Residents who lived on the lobby floor were the first on line to learn about how FEMA could assist them. The National Guard also came to Brighton Beach to help evacuate the assisted living center on Neptune Ave. Hundreds of elderly residents of the Shore View living home were moved to other locations in Brooklyn that had electricity, heat, and hot water. FEMA officials also traveled to residential houses throughout Brighton Beach to assess the storm-related damage. For the Jordan Family, whose basement was flooded, they received half of what it would cost to renovate and refurnish their basement (Cahayom, 2013). Also, they lost their car just like many families who did not evacuate. The insurance company compensated them for the totaled vehicle. Others were not as fortunate in their dealings with FEMA or their insurance company. Several families that I spoke to said they only received one-third in compensation for all the total damages while some received much less.

A Closer Look

Brighton Beach, as I mentioned earlier in the history section, started as a getaway destination for many city folks during the sultry summers of the 19th century. Aside from having plentiful beaches, the Coney Island peninsula was also developed to have amusements such as Luna Park, the boardwalk and the aquarium. Throughout its history, Brighton Beach and Coney Island were developed to provide a separate culture and lifestyle from the hustle and bustle of the big city. In this process, Brighton Beach has changed over the last several decades, becoming a home for many Russian immigrants. Still, there remains a separate, distinct culture, from New York City. This strong disconnect can be seen in Brighton Beach daily life. According to the New York State comptroller, 49.8% of Brighton Beach residents are foreign born—the citywide average is 35.6%.¹³ Many of the foreign born immigrants are either from Ukraine or Russia. From my own experience growing up in my neighborhood, I can say that the Brighton Beach residents have certainly cultivated a sense of their “Motherland.” Many of the awnings are written in Russian,

13 Office Of The State Comptroller, “An Economics Snapshot of Coney Island and Brighton Beach.”

the shops on Brighton Beach Avenue sell authentic home style Russian foods, fur coats are commonplace during the winter months, and English is a second language for many residents.

I only came to realize just how distinctly Russian my neighborhood was when I met Russian immigrants in California and told them I was raised in Brighton Beach. Not expecting them to know my neighborhood, I was surprised when they told me they know Brighton Beach well even though they never lived in Brooklyn. They explained to me that it was the one of their first stops when they visited New York, and they had to see the neighborhood that was featured in many Russian films shot in the United States.

If this is in fact how Brighton Beach is viewed by the outside world, is it also the case that Brighton Beach residents feel isolated from the rest of the city? Even if the answer is a resounding yes, what sorts of communications break down this barrier? Are repeated hurricane warnings from government officials enough to get Brighton Beach residents to listen—maybe? Nate Silver shares the truth behind weather forecasting that may provide insight as to why people are skeptical of the weatherman. “In what may be the worst-kept secret in the business, numerous commercial weather forecasts are also biased toward forecasting more precipitation than will actually occur” (Silver, 2012). In other words, when there is a degree of uncertainty, as is so often the case with predicting the weather, it’s better to err on the side of more, not less. “People don’t mind when a forecaster predicts rain and it turns out to be a nice day. But if it rains when it isn’t supposed to, they curse the weatherman for ruining their picnic,” Silver added. If the weather forecast for Hurricane Sandy was hyped up a bit more than it should have been then why did we not get the message? Silver makes an intuitive point: the National Weather Service is blamed when they issue forecasts or warnings that seem groundless or over-the-top. Another important factor that should not be overlooked is the notion that as residents living on the outskirts of New York City, we may feel disconnected from the information and warnings we receive from weather forecasters who live in the city—the culture is vastly different from that of other New Yorkers and Americans. Moreover, many Brighton Beach residents may have received their information from Russian news outlets, which might have been dissimilar to American news sources in how they disseminated the forecast. Both of these reasons were important elements in our collective decision making as Brighton Beach residents when Hurricane Sandy neared.

In understanding cultural adaptations, then, it is important to understand the culture of those trying to adapt to a given environment. The practical implications of this are most evident for authorities like emergency planners. In trying to send a message out to people so that they can adapt to a particular environment, it is important to understand how their message will be received as if they themselves were part of the culture of the people to whom they were sending the message. In their attempt, they might find that there are better ways to send a message in order to achieve a desired outcome—in our case, a high evacuation rate.

If I pack and plan to evacuate as I did last year and nothing happens, I feel misled for the second time. If I stay and nothing happens—which we have reason to believe in light of Hurricane Irene—then I feel fine. If I stay and the weather forecast is as predicted,

how bad can the damage be?

For those of us who decided to stay, the thought process behind this last question—how bad will the damage be—is the deciding factor on what types of anticipatory or reactionary cultural adaptations we made. People, in their conventional sense of rationality, would not have stayed home during Hurricane Sandy had they known that the storm surge would have engulfed their cars, flooded their homes, and left their lives in a state of temporary disarray. Surely, many of us thought the storm would be much less severe. Even still, why did some people decide to leave or move their cars inland while others all but disregarded the warning signs? Is it not rational to be safe and make preparations just in case? Ask the minority of building residents who evacuated or the bodega owner across the street from my building, and they will acknowledge that anticipating a worse set of outcomes is better than reacting to them.

In both these instances, making strategic anticipatory adaptations served both groups well: building residents who evacuated were able to protect themselves, each other, and their belongings; and the bodega owner was able to open for business the next day. Paradoxically, however, many residents who did not anticipate drastic outcomes demonstrated creative, tactical ways (reactionary adaptations) to their new Post-Sandy environment, although not all of them positive.

The best examples of these reactionary tactics are the instances that involved gasoline. Gasoline became an even more desired commodity as many homeowners needed gas to power their generators, and drivers needed it to leave their neighborhood or get to work. In the wake of the most devastating storm to hit New York City and a severe gas shortage, trying to siphon gas, at least in the eyes of some residents, seems warranted, rational even. The resident who created his own siphoning device was not only able to retrieve gas for other people in the neighborhood, but he was also able to use the pump as a way to barter: using the pump to get gas for other people and keeping a portion of the gas for himself. In the case of the gas station owner across the street from my building, he thought it was in his best interest to raise prices. On the one hand, raising prices can be construed as rational, albeit unethical. Many local residents with a car or a generator needed gasoline, at least they thought they did, given the shortage. The gas station owner knew he could overcharge consumers as a way to compensate for damages to his business. Although it is adaptive, it is also what Conrad Kottak would call maladaptive—namely, it is an adaptation that has negative consequences (Kottak, 24).

The police department was particularly creative in their tactical adaptations. The police officer was clear in explaining that she did not have to reserve a pump for patrons who had gasoline canisters—it was her decision. It was also the police department's decision to allow people to use non-approved gasoline canisters given that there was also a shortage of canisters in hardware stores, which I learned about from one of the officers during one of my gas visits.

In thinking about how my neighbors and I lived and adapted to the environment in the aftermath of Sandy, the adage, “necessity is the mother of invention” comes to mind. Despite the lack of hurricane preparedness in the case of many New Yorkers, many residents found a plethora of ways to live day-to-day. What was also evident was the relationship be-

tween anticipatory strategy and reactionary tactics. In the former, government institutions and evacuees created a plan as a way to adapt to what they thought would happen, while those in the latter sought new ways to work the environment on a day-to-day basis.

Superficially, it may seem as though anticipatory adaptations are superior to reactionary adaptations but upon closer inspection, reactionary adaptations may just be as important, but for different reasons. In the case of the gas station owner, raising gas prices after the hurricane is a good example of why we not only legislate but enforce laws that prevent people from trying to take advantage of one another. It is a model for what we are as humans are capable of and why we further create new adaptations as a result. Conversely, the police officer who reserved one of the gas pumps to create a separate gas line is an example of a creative and beneficial adaptation.

As paradoxical as it seems that there may be an upside to our reactionary adaptations, it may be just as paradoxical—irrational—that we are taught to believe that we are supremely rational in how we think. We have the mental capacity for both, and both rational anticipation and irrational reactions have their own purpose in our complicated lives. In a conventional sense, the former is meant to exhibit our mental faculty at its best. Rational, strategic, and anticipatory behavior are all part of what it means to be human. By extension, logic, reason and rationality meet at every intersection of human achievement. By contrast, irrationality has largely been overlooked or downplayed in our thought process until recently. It may be too early to tell what is the role of our irrationality, but if human behavior in Brighton Beach during Hurricane Sandy is any example, that irrational reactionary thought process is good for two reasons: first, it helps us cope to an rapidly changing environment—one which was not planned for in many cases—and two, it helps us reboot our rational thought process. Think of the gas station owner who raised prices immediately after Sandy. On the one hand, his reactionary decision to raise prices was likely a response to the damage after the storm. On the other hand, it could have also been in anticipation of a gas shortage. Then, it may be better to say that we are not rational agents, but survival agents—sometime, some of us seem as though we are certainly in control of our decisions and make effective rational choices—think of the bodega owner—but other times, we are not acting, but reacting, to the world around us.

Moving Forward

Now that most Brighton Beach residents know what a category I hurricane is capable of, the question is how do we plan for this in the future? In trying to answer this question, I think it is important to look once more at what people in Brighton Beach did as Hurricane Sandy approached. In so doing, we not only understand how Brighton Beach residents feel and think but also people in general.

In “A Post-Sandy World,” I explain how envisioning a devastating Hurricane Sandy helped me make the decision to move my car. It was partly through this imaginary exercise that that I decided it would be a better idea to move my car from my street to my friend’s neighborhood.

Understanding how we think—visually—is imperative to understanding how we

make decisions. When I asked people about how they were preparing for the storm, nearly everyone gave an answer that described a scenario using their sense of vision. We are culturally programmed to think in terms of our sense of sight over our other senses. This can even be found linguistically in our culture: “don’t believe everything you hear,” and “seeing is believing.”

Dan Ariely, behavioral economist, and author of *Predictably Irrational*, points out that we are a visual species, to the extent that our sense of sight uses more of our mental capacity than other sense.¹⁴ In a 2008 TED talk, Ariely explains our irrational thought process to a rapt audience. He starts by demonstrating how our sense of sight can be deceiving using a common visual illusion that can be created by using two tables of equal length. One table is positioned vertically, and the other is positioned horizontally. To the untrained eye, the one on the left, the vertical one, unequivocally appears longer than the horizontally positioned table on the right. When the lengths of both tables are measured and shown, however, one can see that the tables are exactly the same length. Given our sense of depth perception, the vertical table on the left always seems to appear larger. Ariely continues his talk by making a salient point: most of our mental faculty is dedicated to our sense of vision, and as he demonstrated with the visual illusion, our sense of vision is inherently flawed. Interestingly, Ariely goes on to explain that after he removes the lines that measure the length of the table, the perceived lengths of the tables automatically revert to how they were—that is, one still sees the left as being longer than the one on the right. One could only know that the left table was equal in length to the right table not because he now sees them as equal in length but because he knows, just from recalling from his memory, that both tables were measured and found to be equal in length. In thinking about why so many people in Brighton Beach were surprised by the magnitude of Hurricane Sandy, Ariely’s research might provide the answer. If we process our information through our use of visual senses, making cultural adaptations based on what we see in our “mind’s eye,” do we need to see more to make better decisions? Can our strongest culturally adaptive tool also be a biological one? As Ariely said in his talk, “We are visual creatures.” Sight is the sense that allows us to take in information about the world from a greater distance than all the other senses. All things being equal, we usually see the world around us before we hear it, smell it, feel it, and taste it; and, if lack of perspective is the nature of a crisis event, then many of the residents who stayed home during Hurricane Sandy are now better prepared to anticipate what outcomes a category I hurricane can bring—simply because they have witnessed it.

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Breast Cancer and its Link to Acute Myeloid Leukemia¹

Merav Darzi

Abstract

Breast cancer is one of the leading causes of illness in women across the world. In the U.S., while there has been an increase in breast cancer survivors, evidence has shown that a small percentage of breast cancers survivors have developed acute myeloid leukemia (AML) during treatment of their first cancer. For the past few decades, scientists and researchers have tried to explain the cause behind women developing AML post treatment of breast cancer. Currently, there is no conclusive evidence indicating causation, but there is data available to explain a slight correlation between breast cancer and AML. It seems that chemotherapy agents, which alone cause damage to cells and cause cancer, may, in combination with genetic abnormalities, pose the greatest threat of developing AML post treatment of breast cancer. More research is needed to pinpoint the exact mechanism by which AML is developed as a second cancer in breast cancer survivors.

Breast Cancer and its Link to Acute Myeloid Leukemia²

Breast cancer is the most common form cancer found in many women living in developed and/or industrialized countries. In the U.S. alone, breast cancer is the most common form of cancer in women (besides skin cancer (CDC.gov/Breast-Cancer). According to the American Cancer Society (ACS), the Center for Disease Control (CDC) and the National Cancer Institute (NCI), 1 in 8 women in the U.S. will develop breast cancer in her lifetime (Cancer.gov/factsheet/breastcancer). Breast cancer comprises about a third of all new cases of cancer in the U.S. and is the second leading cause of death among women in 2006 (Valentini et al, 2011 and Howard et al, 2007). In 2009, 211,731

¹ Completed under the mentorship of Prof. Sherrye Glaser for BIO 1200: *Human Anatomy and Physiology II*.

² To the women in my family who have fought the battle of breast cancer, I dedicate this paper in their honor, merit, and memory. And great thanks to Dr. Glaser and Dr. VanOra for their guidance and wisdom.

American women were diagnosed with breast cancer, of which 40,676 women died from the disease (Cancer.gov/factsheet/breastcancer). For the past decade, the survival rate of breast cancer survivors (post 5 years of treatment) is almost 90% and breast cancer will account for 1 in 5 cancer survivors in the U.S. (Howard et al, 2007). However, there has been strong research detailing an intense link of acute myeloid leukemia being diagnosed in breast cancer patients. In this paper, we will discuss why acute myeloid leukemia (AML) is more prominent as a second cancer in breast cancer survivors.

Unlike normal cell growth and death, cancer cells do not undergo apoptosis (programmed cell death), but continue to divide and multiply mitotically. Ordinarily, cells which may have damage to their DNA during cellular replication usually undergo apoptosis since the cell is not functioning properly. However, cancer cells have damage to their DNA that is not repaired, but programmed cell death does not occur, hence continue to replicate erratically (Cancer.org/WhatIsCancer).

While many environmental carcinogens cause DNA damage and result in cancer (e.g. cigarette smoking), innate DNA damage due to incorrect DNA replication and proofreading is how genes code for cells to behave cancerous. Generally, there are specific genes, called oncogenes, which control cell division. These genes would instruct the cell whether to increase or decrease the speed of cell division. Also, there is another group of genes called tumor suppressor genes that control the process of apoptosis. Each time a cell divides, errors can occur that would affect the gene's functionality and ultimately gene expression. These changes are classed as mutations, and they affect the function of oncogenes and tumor suppressor genes. Such mutations include translocation, deletions, inversions and additions (Cancer.org/WhatIsAML/detailedguide). Translocation occurs when a piece of a chromosome breaks off and attaches to another part of a chromosome. This can affect the "turn on" or "turn off" mechanism during gene expression (Cancer.org/WhatIsAML/detailedguide). Deletions occur when a piece of DNA is deleted, which impacts the function of tumor suppressor genes (which keep cell growth in check). Inversions happen when pieces of a chromosome are changed in reverse order, and can result in the loss of gene function and protein synthesis. Additions are pieces of extra DNA on a chromosome and can lead to many copies of a certain gene, which can significantly change cell function (especially in the case of oncogenes). There is a "proofreading" mechanism called mismatch repair (MMR), which will be discussed shortly.

In the 1970-80's, many scientists and researchers speculated that the increased risk of women developing breast cancer was due to unhealthy diet and consumption of fatty foods. Since then, researchers have strayed away from this possibility and focused more on the genetic predisposition of women developing breast cancer. For the past few decades, more research has uncovered various data supporting a greater role of genes in the production of cancer cells. Currently, researchers have expanded knowledge and understanding about cancer growth and proliferation, more so than in the past. For example, the discovery of the BRCA I and BRCA II genes have changed the way researchers specifically view breast cancer as a hereditary illness (Wikipedia.org/BreastCancer).

A type of mechanism meant for proofreading to correct the aforementioned mutations is mismatch repair (MMR). MMR aids in proofreading and correcting mis-

matched DNA base pairs during replication (Seedhouse and Russell, 2007). Moreover, an individual's ability to repair damaged DNA is determined by a combination of multiple genes (Seedhouse and Russell, 2007). While some DNA mismatches and other mutations can potentially pose no harm to the overall function of the gene, sometimes, these mutation cases cause genetic polymorphism and lead to drug resistance, susceptibility to certain illnesses and cancer (Seedhouse and Russell, 2007). As mentioned previously, new research has emerged, especially with the discovery of BRCA I and BRCA II genes, that immensely influence a woman's predisposition on developing breast cancer. These mutations in the BRCA genes are inherited and can be passed from one generation to the next. Therefore, women who have the BRCA mutations are highly likely to develop an aggressive form of breast cancer at a younger age.

For women battling breast cancer (whether or not they have mutations in the BRCA genes) there are multiple treatment options. For many, surgery will be the first line of removing the cancerous tissue. This includes lumpectomy or mastectomy. Part of the after treatment of surgery includes radiation and/or chemotherapy in order to eradicate the remaining cancer that might not have been surgically removed. The problem that arises with radiation and chemotherapy is that not only does it cause damage to cancerous cells, but the treatment also damages healthy tissue in the process. Moreover, if a women develops cancer in one breast, there is a great risk of developing cancer again in the second breast (if a mastectomy was done in the past) or perhaps in the same breast (if a lumpectomy was done in the past), and she would have to undergo another round of surgery and radiation and/or chemotherapy. Consequently, women treated with radiation and/or chemotherapy remedies are more likely to develop a second (or third) cancer that arises from the radiation and/or chemotherapy treatment, specifically acute myeloid leukemia (AML) (Cancer.org/SecondCancers). Many researchers have questioned why breast cancer patients are more likely to develop AML than any other second cancer. The following research data will try to hypothesize an explanation why women battling breast cancer are more likely to develop AML.

As previously mentioned, treating cancer with radiation and/or chemotherapy damages cancerous and healthy tissue. Moreover, radiation and chemotherapy causes changes to DNA, which may lead to mutations and changes to gene expression (Cancer.org/WhatisAML/detailedguide and Valentini et al, 2011). Radiation and chemotherapy have adverse effects on healthy tissue, specifically the blood. Normally, a myeloblast (a precursor cell to myeloid cells) will mature into a functional white blood cell. However, when a mutation occurs in a myeloblast, the precursor cell cannot differentiate properly into a mature white blood cell. As a result, genes that instruct normal cell growth are disrupted. The mutation will cause uncontrollable division and spawn more immature clone cells which lead to the development of AML (Wikipedia.org/AML). These AML cells are larger than normal white blood cells, thus clog up tiny blood vessels as they try to pass through them. Therefore, AML patients don't have enough red blood cells or platelets circulating in their system and feel extreme fatigue and are immunocompromised.

Yet the question remains, how do breast cancer patients develop AML while in treatment? One possible answer might have to do with the treatment being used to get rid

of the cancer. Chemotherapy drugs, such as alkylating agents, have been shown to damage DNA base pairs and cause AML in breast cancer patients. Moreover, the greater the doses given over longer periods of time have shown to increase the chances of developing AML in breast cancer patients (Seedhouse and Russell, 2007). Radiation has also been shown to increase AML susceptibility. There are two types of radiation; ionizing and non-ionizing radiation. Non-ionizing radiation is not harmful to the body, but ionizing radiation (which is used to treat cancer) have the ability to break DNA chains, thus damaging chromosomes, and has been shown to cause AML in breast cancer patients (Raymaakers, 2011)

Another type of treatment recently given to breast cancer patients is granulocyte colony-stimulating factors (G-CSF's) or granulocyte macrophage colony stimulating factors (GM-CSF's) (Hershman et al,2007). As mentioned previously, chemotherapy causes damage to healthy tissues, resulting in decreased levels of red blood cells and white blood cells. G-CSF's and GM-CSF's are meant to reduce the need of chemotherapy doses and may limit the intensity of chemotherapy doses, delaying myelosuppression and protect myeloid cells from potential chemotherapy damage (Hershman et al,2007).

Recently, researchers have coined the term t-AML in reference to "post-treatment AML," meaning that the patient developed AML after receiving chemotherapy or radiation treatment for cancer, rather than developing it as a primary form of cancer (AML *de novo*). Approximately 40 years ago, a researcher by the name of Metcalf and his research team had shown in their preliminary finding a link between the development of AML in female patients after receiving treatment for breast cancer (Valentini et al, 2011). His research demonstrated the beginning of the probability of an individual's susceptibility in developing t-AML, especially in patients with a family history of breast cancer. Metcalf's observation was the stepping stone for researchers to confirm (or deny) the correlation between t-AML and breast cancer. Due to his groundbreaking research, there have been numerous cohort studies trying to indicate a correlation or causation between breast cancer and t-AML.

The Roswell Park Cancer Institute (RPCI) in Maryland conducted a perspective cohort study from 1982-1998 by gathering data from breast cancer survivors about whether or not they developed t-AML (Padmanabhan et al, 2008). Approximately 2029 women were treated with breast cancer at the RPCI between 1982 and 1998, of which 34 female patients developed t-AML between 1983-2007. Twenty-four out of the 34 women had a family history of cancer, and of those 24 patients, 23 had at least one first-degree relative with cancer (e.g. lung, breast, pancreatic melanoma, stomach, prostate, thyroid, esophagus, kidney and leukemia; all in decreasing order of frequency). The researchers noted that when compared to breast patients without t-AML, those that did develop t-AML were of older age at the time of the breast cancer diagnosis and were more likely to have four or more first-degree relatives with any form of cancer. In their discussion, the researchers had concluded a possibility of genetic polymorphism which may play a role in patients who are genetically predisposed to breast cancer, t-AML and other types of cancer.

In a journal article written by various researchers and epidemiologists in the U.S., they cohesively conducted a cohort study of 5510 women who were diagnosed with breast cancer (Hershman et al, 2007). In their findings, they noted approximately 16%

(906 women) were treated with G-CSF or GM-CSF to protect their bone marrow during chemotherapy treatment, especially for women diagnosed with breast cancer at a younger age (i.e. under 65 years of age). Of the 906 women given G-CSF or GM-CSF, 16 women (1.77%) developed t-AML. About 4600 patients who were not given G-CSF or GM-CSF treatment with their chemotherapy drugs, 46 women (1.04%) developed t-AML. Moreover, the researchers noted that patients who were given G-CSF or GM-CSF, developed t-AML within 48 months than compared to patients who did not receive G-CSF and developed t-AML after 48 months. The researchers concluded that while G-CSF and GM-CSF may have its benefits to limit the harm caused by intense chemotherapy treatment, the risk for developing t-AML is still an issue that is crucial and must be addressed and explored through additional continuous research. Presently, it is not a clear indicator that G-CSF and/or GM-CSF cause t-AML, but more research is being done to understand the effects of G-CSF and GM-CSF when prescribed alongside chemotherapy treatments.

There have been numerous international research studies that have indicated a link between developing t-AML after breast cancer treatment. A population-based study was conducted by the French Cancer Registry where they evaluated 14,353 cancer patients (Valentini et al, 2011). Among that number, 5663 patients were women diagnosed with breast cancer, and were evaluated for 5 years as a follow up for potential development of secondary cancers. The researchers found that among the 5663 female breast cancer patients, 10 developed t-AML (which was higher than the control group/generalized population). In an Australian retrospective study, researchers found that among the 183,123 female breast cancer patients, 158 (0.09%) developed t-AML (Valentini et al, 2011).

These international studies found that women with breast cancer were 2.6 times more likely to develop t-AML. Moreover the cohort studies have indicated a link between the age of diagnosis of breast cancer in women and subsequently developing t-AML post treatment. These studies found that the chances of developing t-AML rose dramatically for women between the age of 30-49, but the chances decreased with increasing age (Valentini et al, 2011). Additionally, women over the age of 65 had a decreased chance of developing t-AML as they age (compared to de novo AML which is known to have higher chances in people over the age of 65). Statistics of the data have shown that women below the age of 65 were five times more likely to develop t-AML than women in their 60's. They also discovered that there was a three-fold increase in women developing t-AML when treated with radiation alone, and a six-fold increase if treatment included both radiation and chemotherapy (Valentini et al, 2011).

In another cohort analysis ranging from 1990-2005, researchers at the Swedish Cancer Institute located in Seattle, Washington, evaluated the life-time expectancy of women with t-AML after given chemotherapy drugs for breast cancer treatment (Kaplan et al, 2011). They noted that breast cancer survival rates have improved over the past 30 years, but there has been an increase in t-AML incidence rates. About 40,650 patients were analyzed, of which 69% were less than the age of 65. Of the total number of patients treated for breast cancer, 7% were treated only with surgery, 48% had surgery/radiation treatment, 11% had surgery/chemotherapy treatment, and 34% had surgery/radiation/chemotherapy treatment. Of patients given chemotherapy treatment, 76% received anthra-

cycline (alkylating agent) and 46% of patients given chemotherapy also received G-CSF treatment. The researchers found that 17 patients developed t-AML, where the median time of breast cancer diagnosis to t-AML diagnosis was 4.35 years (range of 0.67-13.6 years). The researchers also noted that 7 out of the 17 patients diagnosed with t-AML had a survival rate post diagnosis was an average of 9 months (ranging from 0.5-134 months). Researchers have hypothesized that there may be a connection for a combination of factors, specifically both a person's genetic predisposition to cancer and the chemotherapy treatment given, may induce t-AML in larger percentages (Kaplan et al, 2011).

The National Cancer Institute (NCI) and the National Institute of Health (NIH) in Maryland conducted an international population study of 376,825 women (1-year breast cancer survivors) between 1943 and 2001 from population-based cancer registries in Sweden, Denmark, Finland, and Norway (Howard et al, 2007). Their findings indicated that not only was age an important factor for developing t-AML, but also the intensity of the chemotherapy doses given for treatment for breast cancer patients (Howard et al, 2007). Scientists discovered that women who were diagnosed before 1985 and older than 50 years, had a greater chance of developing t-AML in comparison to younger women at that period of time. However, after 1985, they noticed that younger women were more likely to develop t-AML than women older than 50 years. The researchers concluded that the radiation/chemotherapy treatment given to women older than 50 and before 1985, received a more aggressive form of treatment. After 1985, there were more advanced treatments and highly targeted therapies available (such as the drug Tamoxifen as a hormone therapy) which decreased the risk of developing t-AML in breast cancer patients over the age of 50 years. However, for younger women less than 50 years, researchers explain that breast cancer patients have developed a more assertive type of breast cancer, thus received an aggressive form of treatment, such as G-CSF, radiation and/or chemotherapy, which do increase the chances of developing t-AML. It is my hypothesis that younger women in this current generation who develop breast cancer at a younger age, have a genetic defect (such as BRCA mutations and/or other unknown genes) that would cause a more aggressive form of breast cancer (especially for women for do not undergo yearly mammograms at a younger age than the rest of the population). In order to combat the aggressive nature of the cancer, doctors are prescribing an aggressive form of treatment for younger women, such as high dose/intensity of chemotherapy, radiation and G-CSF, which increase the chances of developing t-AML.

Indeed, in another case study conducted at the Dana Farber Cancer Institute in Boston, researchers concluded that there must be genetic abnormalities for younger women who developed t-AML after receiving treatment for breast cancer (Larson and Le Beau, 2011). They found that genetic abnormalities are a strong predictor of whether a person will develop a secondary form of cancer after receiving treatment for the first case diagnosis. Scientists noticed that genetic abnormalities (i.e. mutations) found in cancer patients had a shorter survival rate. Such genetic mutations include abnormal changes to the P53 tumor suppressor gene, and deletions of part or all of chromosomes 5-7, which contribute to a person being susceptible to multiple forms of cancers and have a low survival rate expectancy.

Combining all the data and research about t-AML diagnosis after breast cancer treatment, it is my conclusion that women developing t-AML after breast cancer treatment is a complicated and multifaceted issue due to various possible triggers. It seems today that women who develop breast cancer at a young age (e.g. before the recommended mammography screening at age 40), could be caused by a genetic defect inherited from past generation(s). These genetic defects may be BRCA mutations, abnormal function of P53 tumor suppressor genes, or various (yet unknown) other mutated genes that cause a person to be genetically predisposed to certain types of cancer. For younger women being treated for breast cancer, besides for their genetic abnormalities, they are given chemotherapy drugs, such as alkylating agents, which are known to cause harm and damage to the bone marrow and as a result, disrupt proper development of white blood cells (hemopoiesis) which result in developing leukemia. Moreover, because of their genetic mutation combined with the external damage of chemotherapy agents, these genes cannot undergo the proper proofreading or “fixing mechanisms” required to repair the damaged chromosomes. Consequently, the cells do not undergo apoptosis (Beadle et al, 2009). Furthermore, these defective genes are shared within the family, so it is not uncommon for at least one immediate family member also developing any type of cancer at an early age. In addition, the chances of developing t-AML from the damage caused by chemotherapy (and possibly from G-CSF) along with their malfunctioning genes, lowers the survival rate expectancy of these young women. All of these factors combined pose a great risk of young women developing t-AML after breast cancer treatment, and for some, not surviving for more than 5 years after t-AML diagnosis. It is my recommendation that more research should be done to understand genetic mutations that cause the susceptibility of t-AML in breast cancer patients. Additionally, it is of great importance for women who have a strong family history of breast cancer to get screened for breast examination at an early age of 30, and if possible, to undergo genetic testing to analyze for hereditary influences and predispositions to breast cancer and/or other forms of cancer. There should also be more research to develop a more innovative and less invasive form of chemotherapy treatments in order to reduce the risk of t-AML in breast cancer patients.

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Big Oil

Its Effects Over Life and Culture in Africa with Perspective from *Things Fall Apart*¹

Vincent Edwards

A group of men from Nigeria, fronted by Ken Saro-Wiwa, have traveled far from home, to New York City, seeking one thing.. justice! They have been in court-rooms in their native land for over fourteen years, fighting the huge oil giant, Shell Oil. This is because actions by the oil company, in conjunction with the local Nigerian government officials, caused the tragic deaths of eight individuals, including Ken Saro-Wiwa Sr., Mr. Saro-Wiwa's father. These men paid with their lives, in an effort to bring to the world's attention, the terrible civil and environmental violations that Shell had brought to the people of Nigeria. While this is a story that has happened in modern times, this is, by no means, a new story.

Indeed, it is a decades long struggle, and a fact of life for Nigeria's people, as shown in author Chinua Achebe's gripping novel, *Things Fall Apart*. This essay will explore some of the similarities between Mr. Saro-Wiwa's fight for justice and Achebe's main character, "Okonkwo," as the latter and some of the clansmen of the village of Umuofia had to deal with the influences of the newly arrived white settlers.

To begin with, a review of Ken Saro-Wiwa's case against Shell Oil is in order. In a *New York Daily News* article reported on November 3, 2008, the background is given that, seemingly, at the behest and assistance of Shell Oil, a Dutch company, forces in the Nigerian government led a brutal crackdown against civil unrest in its population. The local people were very angry with Shell, and what they were calling ruthless destruction and exploitation of Nigeria on its lands and, much more importantly, its people. The oil giant seemed only concerned with its own profits, and not of the welfare of the lands upon which were being drilled, or the citizens who gave access to these lands. This, in effect, brought out pockets of people who decided to speak up and denounce Shell for their actions. In particular, as reported in the *Daily News*, Ken Saro-Wiwa Sr., and other like-minded individuals, tried to draw the world's attention to the side effects of Shell's actions, such as pollution and other damages to their lands (Zambito).

¹ Completed under the mentorship of Prof. Maureen Haggerty for ENG 2400: *Freshman Composition II*.

This development caused Shell to release a document for the Nigerian government with “suggestions” on how to deal with the local uprisings. This memo advised the government to sponsor “ruthless military operations” against its own people, in an effort to continue the “smooth economic activities” which were the concern of Shell. Soon after, Saro-Wiwa and the others who spoke out against Shell were captured by the local authorities. Then, after trumped up charges were brought, Saro-Wiwa and the others were put on trial, convicted and, on November 10, 1995, were all hanged as punishment, the final insult to these brave souls who were only trying to make conditions better for the people of Nigeria (Zambito).

Now, many years later, the younger Saro-Wiwa and a few others finally arrive in New York City, getting their day in court to argue this case against Shell Oil. About one year later, Shell finally decided to settle the case, which won the group an award in the amount of 15.6 million dollars, as reported in THE GUARDIAN UK. This settlement ended a journey for Saro-Wiwa and his group that was over fourteen years in length (Pilkington).

This whole incident, as mentioned before here, is not anything new for the African nation. Nigeria has dealt with outside forces bent on using the land and its people for selfish reasons in the past and, in the story Things Fall Apart, even though it is an historically correct fictional work, readers can see many instances of similar ilk in Mr. Achebe’s tale.

The white settlers just seemed to be a strange group of people but, in response to the new arrivals’ requests, the settlers were allowed use of some of the village lands. These new people built things like schools and, more importantly, churches on land that local kinsman deemed “cursed areas.” The village elders did not take the white settlers seriously, figuring that having churches on these lands would surely cause the settlers’ deaths. However, not only did the church builders survive their deeds, but the perception of the white man’s “religion” had an opposite effect the villagers intended: It empowered the church, since this new God seemed to have great power in protecting His believers. (Achebe 149). All of these goings-on really disturbed Achebe’s main character, Okonkwo.

He felt that the white settlers were a bad influence on the people of Umuofia. An even greater insult to Okonkwo was the fact that the new religion had won over his son, Nwoye. This angered Okonkwo even more, even though Nwoye was not his favorite child. He felt that Nwoye was weak, as well as other villagers who were seduced by the ways of the white man. He spoke out against the whites in tribal meetings but, in his own mind, he was truly disturbed by what was happening with his kinsman. But it was the act of another village Christian convert, a man named Enoch, which brought Okonkwo’s rage to a head. During the dance of the sacred Egwugwu, Enoch taunted his people by saying that they would not dare touch the new Christian converts. But in his over-exuberance, he unwittingly unmasked one of the sacred dancers, which was a huge insult in the tribe (Achebe 186).

This breach of protocol finally broke through the tense scenario and called to action the villagers against this new church. Okonkwo and a few others lashed out by destroying the new church. And while it was a satisfying display of manliness that Okonkwo

was seeking out of his fellow people, it was not without its own cost. The white settlers called on local government leaders (who, of course, by now, were more white men) to bring justice for the destruction of their church. Okonkwo and his cohorts were summoned to the courthouse and held in lieu of payment for the damages (Achebe 196).

During the time Okonkwo and his fellow kinsman were being held in custody, Okonkwo suffered even more as he was whipped for his role in the carnage. Finally, the Umuofia people were able to pay the fine for their release, and then they were set free to return to Umuofia.

So, here now before readers are these two events: One true, and one fiction. See the points here: Okonkwo's plight in his village may seem different than what Mr. Saro-Wiwa had to deal with, but is this the case? Looking at the storyline of Achebe's book, it depicts how an outside force uses some very slick moves to impose its will upon the native population towards its own goals. What is not stated outright in Achebe's book is the true motive, but it can be guessed as oil being the reason that the white man has come to Umuofia. In the book's narrative, the final phrase stated that one of the white men was working on a book describing how the settlers went about "pacifying the primitive tribesmen." In the actual truth, the motivation was nothing more than the exploitation of the local people.

Another point which readers can take from Mr. Achebe's book is that these happenings were just the opening act of the settlers, all the more brought out by the fate of Ken Saro-Wiwa. It is not just the fact that the charges of which Saro-Wiwa and his comrades were convicted were false, but that it was an influence outside of the usual channels which brought these men to their doom. The book mirrors this action as well, as the Umuofia tribesmen were convicted of burning down the Christian church, but then what of the Christian followers' crime? Did they not break the tribal law? While Okonkwo and his cohorts did carry out the crime of which they were accused, what of the crime which sparked the unrest in the first place? This was looked at by the court as a non-issue.

This horrible miscarriage of justice also shows up in the case of Mr. Saro-Wiwa. In that case, what would anyone be expected to do, if they feel that their rights were being trampled upon? Mr. Saro-Wiwa and his followers had every right to try and stand up to Shell for their practices. It was a downright shame what was allowed to go on with Shell only looking at its bottom line, and using its influences within the government to get its way. It is only fitting that Shell suffer greatly by paying the offended people. What crimes had Saro-Wiwa and his companions committed? Was there any proof offered up to warrant the deaths of these men at the hands of their own government? It has to be mentioned that the Daily News article is possibly biased in its report. But what there is no doubt is that Shell got what it had wanted with these acts: They were able to silence the voices of a good cause.

With these examples of outrageous behavior by Shell Oil, as well as those of the settlers in the tale of Umuofia, readers must conclude by looking at the big picture in all of this. By the sheer greed of the parties presented here, the outcome is the destruction of much of the tradition and culture of this African nation. Only by the will of the people who are willing to work to piece together "things" that have "fallen apart," will a difference be to the final outcome of Nigeria and its people. Because when all is said and done,

and big oil companies finally leave in search of other lands to exploit, it will be up to the coming back to traditional values to even have a chance of fixing the mess big oil leaves.

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Identity in Early Twentieth Century America

Fitzgerald's "Winter Dreams" & Steinbeck's "The Chrysanthemums"¹

Alan Hawkins

“Winter Dreams” and “The Chrysanthemums” are short stories written by American authors F. Scott Fitzgerald and John Steinbeck respectively. “Winter Dreams” was published in 1922, four years after the First World War ended and seven years before the stock market crash of 1929 that precipitated the Great Depression. “The Chrysanthemums” on the other hand, first appeared in 1938, towards the end of the Dust Bowl at the depth of the Great Depression, just one year before the onset of World War II. Though they were published sixteen years apart, the two stories are closely related in that they feature character models of the American experience from opposite ends of a very dynamic time in our history. On one hand we have Dexter Green of “Winter Dreams,” a character exemplifying the virtues of wealth, power and image. On the other, there is Elisa Allen of “The Chrysanthemums,” who, having neither wealth nor power, embodies the despondency of unrecognized human potential.

“Winter Dreams”

“Winter Dreams” is a tragedy. An American hero of capitalism achieves great wealth, but is devastated when the fixation that motivated his passionate childhood dream is dispelled.

Fitzgerald drew heavily from his own life experience to create his characters, especially it seems for Dexter Green, the protagonist of “Winter Dreams.” As a young man Fitzgerald lived with his family at 599 Summit Avenue in St. Paul, Minnesota (*F. Scott Fitzgerald*). It was a fine house for an upper-middle class family, but even so, it was at the far end of the most affluent street in St. Paul. Like Dexter, Fitzgerald’s starting position in society was adjacent to upper class wealth, though just outside of it. Dexter Green’s

¹ Completed under the mentorship of Prof. Natasha Lvovich for ENG 4000: *Short Fiction*.

triumph was to close that distance.

Like the host of a documentary, the narrator of “Winter Dreams” stands aside from the action, inviting the reader to look on with him. The reader is taken from one brief period in Dexter’s story to the next, as if fast-forwarding through the movie of his life. One gets the sense that “Winter Dreams” is a cautionary tale—that we are here to learn from Dexter’s experience, in particular, his involvement with Judy Jones.

Dialogue is minimal throughout the text, which consists mostly of the narrator’s description of the events and of Dexter Green’s thoughts. In fact the narrator colors the text with opinions and comments, sometimes even expressing derision and conceit. In the opening paragraph the narrator refers to other caddies who are “poor as sin” and live in tiny houses with “neurasthenic cows”² in the yard, before pointing out that Dexter only worked as a caddy for pocket money because his father owned the second-best grocery in town (Fitzgerald 185). Dexter is observant, intelligent and obsessed with Judy; though not because she is smart, charming, fun or loving, (she is none of those things, instead she is petulant, disrespectful, impatient, entitled and callous) but because she is exceptionally beautiful, and not only that, but also the daughter of Mortimer Jones, one of the wealthiest members of the Sherry Island Gold Club. Dexter first meets Judy at the beginning of the story when she is eleven and he is fourteen. It is too early in the day for caddies to be available and this news somehow leads to an argument between Judy and her nurse (babysitter) that ends with the nurse having to snatch a golf club away from young Judy before getting hit with it. Rather than being repulsed, Dexter decides on the spot to quit working as a caddy, though apparently not so that he won’t have to deal with such people, but so that he can become one of them. “Do not get the impression, because his winter dreams happened to be concerned at first with musings on the rich, that there was anything merely snobbish about the boy. He wanted not association with glittering things and glittering people, but the glittering things themselves” (Fitzgerald 189).

Instead of going to school like other young men his age, Dexter takes a great personal risk to borrow one thousand dollars and invest in a local laundry business. Then with calculated precision, he specializes in the sort of clothing worn by wealthy patrons of the golf club, thereby securing his fortune before the age of thirty. We are told that Dexter’s father would have paid his college tuition, and it is the second and last time he is mentioned, further illustrating another aspect of Fitzgerald’s ideal character: independence. He is a solitary outsider who outsmarts his peers, impresses his elders and triumphs through his own wits.

Dexter and Judy date several times during their twenties, and are even briefly engaged. Years later, after Judy has broken off their engagement and scuttled Dexter’s second engagement to another woman, (when she seduces and leaves him again), the narrator explains his essential feature as ultimate confidence — “He was completely indifferent to popular opinion” (Fitzgerald 202).

Dexter’s personality and the narrator’s attitude toward him betray a reverence for affluence that would soon become distasteful to the American audience. The United States had

² Neurasthenia | noun: an ill-defined medical condition characterized by lassitude, fatigue, headache, and irritability, associated chiefly with emotional disturbance.

not suffered as much as Europe in WWI and, in 1922, was in the midst of an unprecedented economic flourishing. Never before had the American dream offered so much. Not only could one live peacefully in their own home, but there were technological marvels all around — beautiful cars, unbelievably tall buildings, airplanes, and tons of money to be made on the stock market. At the time, characters with Dexter Green's qualities and aspirations were admirable.

In the end, it is the shocking news of Judy Jones' normalcy that upsets Dexter so much. A potential client of his casually mentions that she has settled down, had a few kids, and aged into an average pretty lady. Dexter is stunned to hear her spoken of in this way because it was only her beauty, and its corollary status, that had captivated and inspired him. Judy Jones represented not just all the expensive trinkets a man could want, but ambition itself, a living trophy to trump all others.

“The Chrysanthemums”

At the opposite end of the spectrum, Steinbeck also summoned similar muses. Many of his stories, including “The Chrysanthemums,” take place in the Salinas Valley of California where Steinbeck was born and raised. Similarly, Steinbeck's characters, like himself, were of lesser financial means than Fitzgerald's. His father worked several jobs in agriculture and local government, and his mother was a schoolteacher (Frenz). Though it is also a drama, “The Chrysanthemums” does not feature a tragic fall from great heights like we see in “Winter Dreams.” Instead it gives the reader a sad moment of clarity in the average life of Elisa Allen. The story takes place on one particular afternoon and consists mostly of dialogues between Elisa, her husband Henry, and the Tinkerer. Though brief, “The Chrysanthemums” is a comprehensive look at a woman stifled by society.

To foreshadow the tension of Elisa's circumstances, the narrator sets the scene of a “closed pot” — the fog-laden Salinas River valley in December where the “pale cold sunshine” was cast only upon the distant hills, but not on Elisa's garden (Steinbeck 228). Elisa's strong hands are making quick work of her chrysanthemum plot when Henry appears suddenly to bring her good news about a deal he has just made to sell thirty cattle. In one breath of small talk he first compliments her exceptional gardening skills, which she acknowledges, and then dismisses their possible contribution to the household income, saying: “Well, it sure works with flowers,” — i.e. not for crops that are actually worth any money (Steinbeck 229).

Not long after Henry goes off to gather the cattle, the Tinkerer appears. He is a nomadic handyman. The narrator points out that the sign painted on his wagon is inelegant and misspelled, suggesting Elisa's superiority over the Tinkerer — she would not make such mistakes.

The Tinkerer is seeking work and finding none. Everything he offers to fix, Elisa has already fixed; she does not need him. But when he desperately compliments her chrysanthemums, Elisa warms up — now she is the expert; perhaps he needs her. The Tinkerer pretends to take some cuttings for another client, which Elisa prepares with great care and enthusiasm before taking pity and giving him an old disused pot to fix. When she

discovers at the end that he had dumped the sandy bundle on the road immediately after his departure, she realizes that the Tinkerer had only humored her for his own profit.

If they are noticed at all by the men around her, Elisa's strength and talents are of merely curious value. As she is culling her unwanted old chrysanthemums to make room for the new season she is described being rough, powerful and focused, though handsome too. The narrator even compares her to a terrier for the way her strong fingers search about the roots for pests, "No aphids were there, no sowbugs or snails or cutworms. Her terrier fingers destroyed such pests before they could get started" (Steinbeck 229). Terriers stand out from other dog breeds for being smart, loyal, tenacious and most of all fierce; though, of course, small and unimposing. The economy at that time was very difficult for everyone, even traumatic for some, but if a vagrant smith can dismiss her so confidently, what is there for her to fight for? Elisa even complimented the Tinkerer, admiring the freedom of his lifestyle, to which he flatly replied: "It ain't the right kind of life for a woman" (Steinbeck 235).

After having seen her precious gift discarded on the way into town to celebrate with her husband, she inquires about going to see a boxing match, something she's never expressed interest in before. Sadly, she gives up even on that small excitement when Henry cautions that she probably would not like it. Instead she settles for a glass of wine at dinner. In the last line, Elisa hides her face to weep as she accepts her powerless fate.

Were it not for his being a man born into affluence, Dexter Green wouldn't be so different from Elisa Allen. Through Elisa, Steinbeck reminds us that the circumstances of one's birth still dictate many peoples' lives, even though they should be of no consequence in the free society the United States has always claimed to be.

Just as there are no waves without troughs, or peaks without valleys, identity, like all forms of definition, is a matter of contrast. "Winter Dreams" and "The Chrysanthemums" (and their respective authors, Fitzgerald and Steinbeck) represent two sides of a coin, equivalent opposites. Both were compelled to examine the mores and lifestyles that they lived and observed, and to distill these aspects into characters that reflect essential American experiences of the period. If we are the united, classless and egalitarian country that we claim to be, then our national identity must somehow reconcile experiences such as these from the actual realms of American society.

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Destiny Via Ecology¹

Shari Houston

The most significant actors in the story of history following the discovery of the New World were not Christopher Columbus or Moctezuma or Hernán Cortés. Instead, they were flora and fauna, such as the smallpox virus, the potato, the pig, and the kernel of corn.

The life you live today would be alien and unrecognizable, if you even had a chance to be born at here at all, were it not for what amounts to massive socio/bio/eco/economic terrorism. It is a past few are really aware of. Fewer still care about its ramifications because their ancestors were not on the receiving end of this massive salvo of exotic weaponry. I was at one time one of those people, and did not truly “get” the concept of this all encompassing exchange of disruptive ideas, harmful bio-weapons, technological arms and the effects they portended, whether they were intended or not.

Who we are today and explaining what brought about the lives we live must in no way belittle those that were here before us. As a disclaimer, I would like to be sure to state that although by outlining what I have researched, I am not justifying the Euro-centric domination of another ecosphere.

It is simplistic to list species that went from the New World to the old and vice versa, but I will focus on the introduction of some of the most important ones and the compounded effects they had. In Noble David Cook’s “Born to Die,” he discusses the smallpox outbreak that was so devastating to the Native Americans: “The disease was so strange that they neither knew what it was, nor how to cure it; the like by report of the oldest men in the country never happened before, time out of mind.” This systematic decimation of the native populace was not, as some had thought in the past, caused either by the brutality of the Conquistadores and their encomienda system (the corrupt chattel legal system the Spanish crown instituted to parcel out natives as slaves and merchandise) nor was it divine intervention that thinned the population of the Amerindian peoples. There

¹ Completed under the mentorship of Prof. Beth King for ANT 3700: *Introduction to Anthropology*.

was neither a Heavenly H-bomb or Spaniards in significant numbers to account for the apocalypse. It was the incredibly devastating diseases such as smallpox, typhus, influenza, measles, bubonic plague, malaria, cholera, tuberculosis, mumps, yellow fever and pertussis, also known as whooping cough, which were all well known in Europe and Asia.

What I am describing is not just the innocent spread of an infectious disease to which the Europeans were inured and the Native Americans biologically naive. It is also possible that the interlopers observed the disastrous results of their contact with the natives and exacerbated them intentionally. In his book, "American Indian Holocaust and Survival: A Population History Since 1492," Russell Thornton tells us that some small pox blankets were given as gifts in the hopes of eradicating the natives.

Warfare and pogroms were less significant than the displacement of the Native tribes via their habitat destruction. The European population booms because of the continued arrival of more immigrants and the high birth rates of the settlers in comparison to the decimated natives. This put pressure on them to relocate and shift from the patterns of life to which they had become accustomed over thousands of years. That relocation and pressure increased infant mortality rates and led to an increased decline in the tribe's stability. The new ways of farming that the interloping Europeans used provided them with a surplus of food to support a much greater population than the hunting and gathering methodology used by many of the indigenous societies.

Eurasians sent much more than disease westward. Moving up in biological complexity to plants, the amount of bio-diversity introduced to the American continents in flora was immense. The list of the plants that affected both ecologies would be exhaustive and beyond the scope of one paper, but some of the significant ones brought to the New World were the familiar food items of Europe: wheat, sugar, and rye. Even more importantly, the flora discovered in the New World, which made a vast contribution to Afro-Eurasia in terms of new plant species and cuisine, however, metamorphosized life in places as disparate as Ireland, South Africa, and China. Before Columbus, the Americas had a plethora of domesticated plants. By the time Columbus had arrived, many plants were in regular use, the most important of which were maize (corn), potatoes, cassava, and various beans and squashes. Crops of less importance included sweet potato, papaya, pineapple, tomato, avocado, guava, peanuts, chili peppers, and cacao, the raw form of cocoa. Only 20 years after Columbus' last voyage, maize had established itself in North Africa and perhaps in Spain. It spread to Egypt, where it became a staple crop in the Nile Delta, and from there on to the Ottoman Empire, especially the Balkans. By 1800, corn was the major grain in large parts of what is now Romania and Serbia, and was also important in Hungary, Ukraine, Italy, and southern France. It was frequently used as animal feed, but people ate it too, usually in a porridge or bread. Maize appeared in China in the 16th century and eventually supplied about 10 percent of the grain supply there. In the 19th century it became an important crop in the South Asian subcontinent. Corn probably played its greatest role, however, in southern Africa. There maize arrived in the 16th century through the process of the slave trade. Southern African environmental conditions, across what is now Angola, Zambia, Mozambique, Zimbabwe and eastern South Africa, suited maize superbly. In the following centuries, maize became the primary peasant food

in much of southern Africa. In late 20th-century South Africa, maize grew in two-thirds to three-quarters of the region's cropland.

Despite corn's success, the humble potato probably had a stronger impact in improving the food supply and in promoting population growth in Eurasia. The potato had little impact in Africa, where the environment did not suit its propagation. However, in northern Europe the potato thrived. It had the most tremendous effect on Ireland, where it promoted a rapid population increase until a potato blight ravaged the crop in 1845, bringing widespread famine to the area. After 1750, Scandinavia, the Low Countries, Russia, Poland, and Germany also gradually accepted the potato, which helped drive a general population explosion in Europe. This population boom may have laid the foundation for world-shaking developments such as the Industrial Revolution and modern European imperialism. The potato also fed populations in mountainous environments around the world, notably in China, where it encouraged settlement of mountainous regions.

While corn and potatoes had the greatest historical importance of the American crops, lesser crops made their marks as well. In West Africa, peanuts and cassava provided new food sources previously unknown. Cassava, a tropical shrub native to Brazil, has starchy roots that grow well in almost any soil. In the depleted soils of West and Central Africa, cassava became an indispensable crop. Today some 200 million African people rely on it as their main source of nutrition. Cacao and rubber, two other South American crops, became lucrative export items in West Africa in the 20th century. The sweet potato, which was brought into China in the 1560s, became China's third most important crop after rice and wheat. It proved a valuable supplement to diets throughout the monsoon lands of Asia. In fact, almost everywhere in the world, at least one American food crop caught on, complementing existing crops or, more rarely, replacing them. By the late 20th century, approximately 30% of the world's food supply came from plants first cultivated in the Americas. The rise of population to modern levels surely would have been slower without them.

In contrast, the animals of the Americas have had less impact on the rest of the world, unless one considers the earliest migrants of the New World. The camel and the horse actually originated in North America and migrated westward across the Bering Land Bridge to Asia, where they evolved into the forms known today. By the time of the Columbian Exchange, these animals were long since extinct in the Americas, and the majority of America's domesticated animals would have little more than a tiny impact on Afro-Eurasia. One example of a domesticated animal that did have an effect was the turkey, whose rapid proliferation throughout Europe has been difficult to explain. Either through aggressive breeding techniques or hybridization, the turkey became a common poultry bird. Wild fauna of the Americas have done only a little better. Some time after the 19th century, North American muskrats and squirrels successfully colonized large areas of Europe. Intentional introductions of American animals, such as raccoons, fancied for their fur and imported to Germany in the 1920s, occasionally led to breakouts of the dextrous animals and the establishment of feral animal communities. Apparently, no species introduced from the Americas revolutionized human affairs or animal ecology anywhere in Afro-Eurasia to the degree that the antipodal introduction did. Animal popu-

lations, as with disease, contributed little that could flourish in the conditions of Europe, Africa, or Asia.

The Columbian Exchange of foodstuffs tremendously augmented the European, and incidentally the African, diet, by improving the Old World societies' abilities to feed more of their population. Starvation, the long-standing limitation on community growth in both Europe and Africa, was by and large defeated through the introduction of New World foods.

Three of the fundamental harvests of the Western Hemisphere, namely cassava, corn, and the potato, turned out to be far more productive sources of carbohydrates than wheat, which was the previous European staple. An acre of corn or one of the other crops returned twice as much caloric output as a similar acre planted in wheat. The increased yield of calories from farmers who adopted New World plants fueled a rise in Old World population numbers. As an example, Ireland had widespread farming of the potato that allowed the population to increase from just over one million in 1670 to better than 8 million by the terrible Potato Blight in the 1840s. In the case of Cassava, which is a root plant hailing from tropical climates, it prospered in the poor soil of Africa's equatorial region, supporting a population boom in the Congo, which was an unfortunate result, as it only served to increase the human crop that was also harvested as uncaringly as stalks of corn. That unfortunate result was, of course, the African slave trade.

According to Alfred W Crosby's *The Columbian Exchange: Biological and Cultural Consequences of 1492*, "we might hypothesize that the increased food productions enabled the slave trade to go on as it did without pumping the back well of Africa dry." This meant that the slave traders could draw upon increasing populations in the jungle areas of Africa that were most greatly improved by the North American crops to provide the manpower that could no longer be found from the plague decimated Amerindian tribes. Contact between Africa and Europe was already well established and having long since been inured to the European pathogens, the slaves did not suffer from disease in the same way as the American natives. Although it has been said that many tribes in Africa sold their fellows into slavery to the Atlantic traders for weapons and other status symbols, the concept of slavery as it came to develop in America was not the same as what had been practiced in West Africa. In the 15th century West Africa had settlements and metropolitan areas, empires and kingdoms. Great prosperity had been brought to the West African kingdoms, especially from across the Sahara Desert, which assisted the rise of empires such as Mali, Songhai and the Ghana. However, despite the lofty heights civilization may have risen to, life was still very village oriented. Slavery was an established part of day-to-day village life. People could become slaves in these villages in myriad ways. In some instances, unfortunate situations could make people choose slavery. For instance, if a man was in debt and could not pay what he owed, he could opt to become a slave until he was no longer in arrears. Entire families occasionally worked as slaves until a father or husband was no longer in debt. Another time of great necessity was when food was scarce. In those times, people might sell themselves or their children into slavery temporarily for needed sustenance until the crisis passed. There were also those who were involuntarily compelled into slavery. Punishment for crimes was a possible reason to be pressed into

slavery. Periodically captives, especially children, were kidnapped from their villages and sold into slavery by traders. By far the greatest amount of slaves in West Africa, however, were prisoners taken as spoils of war. Wars were even waged primarily to take captives, who could then in turn, be sold to other villages for a profit. Still, in West Africa the lives of slaves were not very different from those of their owners. Slaves were integrated into village life. They labored, shared meals, and habited with the household that owned them.

By contrast, slave life in the Americas was very different. There it was referred to as “chattel slavery.” The meaning of this was that slaves were considered as property instead of as human beings with rights. The meaning of chattel slavery as portable property can be best illustrated by the practice of slave auctions. At an auction, slaves were put on display to show off their features and sold to the highest bidders. In many ways, they were treated like animals being sold at a market. Buyers might measure the strength of a slave by feeling his or her arms and legs. To see if slaves were healthy, buyers might examine their teeth. Slaves from the same family could be sold to different owners, never to see their loved ones again.

Slave owners kept a tight leash on their slaves, with legal support for their draconian ways. In many states, it was illegal to teach a slave to read and write. The laws made it clear that slaves were not to be regarded as human beings with the same rights as other people.

Other state laws and codes strengthened owners’ control over their slaves and limited the slaves’ freedom. Except for work, slaves were forbidden to gather in groups of more than five people. They were not allowed to leave their owner’s plantation without a written pass. Slaves could not even preach to their people if a white owner was not present. Law and custom alike constantly reinforced the enormous gulf between black slaves and even the poorest whites. In these ways it is made clear that although there may have been slavery in Africa before Columbus, the Columbian exchange’s occurrence led to a much more widespread, oppressive and brutal form.

The most clear siren’s songs of the New World were the economical opportunities that presented themselves. Word spread rapidly of the riches the new world had to offer when Columbus returned to Spain. This improved the possibility at this point in history for the desperate and ruthless to seek their fortune or erase their past and get a fresh start. The Americas generated vast sums of precious metals, amongst them gold and silver. The actual amount imported to Europe is not easy to estimate, but the immensity of the plunder and mine workings made economies based on money with a precious metal standard possible. This enervated trade to a high degree and opened new vistas. Having new opportunities and a destination to exploit invigorated Europe and made mercantilism possible. Mercantilism, as described in “The Concise Encyclopedia of Economics” by Laura Lahaye is an economic doctrine. Coined by Adam Smith, this system influenced Western European thought and policies from the sixteenth to the late eighteenth centuries. It involves the enhancement of material wealth of individual nations, and makes a country’s power dependent on its wealth. With the wealth derived from the New World, economic changes were wrought on Europe’s society, such as advancing the expansion of cities and giving rise to a more powerful and more affluent caste of merchants. The proliferation in the use

of gold and silver metallic monetary systems overshadowed barter transactions.

In conclusion, there is hardly any facet of life today that cannot trace its origin to this incredible significant historical event and the sacrifices made. The dark desires fulfilled to bring them to us should lead us to a thankful and contemplative attitude toward life and differing cultures. We must remain positive however; being wracked with guilt for transgressions we are not responsible for nor can countermand achieves nothing, but we can use this knowledge to be enlightened, evolved citizens of the world.

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Six Illustration Styles

Owl Sketchbook¹

Olga Jurga



1 Completed under the mentorship of Prof. Valerie Sokolova for ART 6900: *Illustration Styles*.









History Forgotten

Cahokia: America's Oldest City¹

Ricardo Lafontant

Abstract

Cahokia, expanding from the indigenous plots of early American land, stretching from the coast of the Mississippi to the far outskirts of eastern Illinois, lay in the middle of that region the grooming of the developing mound society. Its development into a city took place around the start of 1000 A.D., and was reaching the peak of a golden age, roughly in the mid-13th century. During that time period the architecture was magnificent as the city grew in size, and was capable of housing upwards to 15,000 Native Americans. In short, the purpose of this paper is to develop and disseminate the greater image of a once great city, in the hopes that one day the name Cahokia, would not be glazed over without invoking greater thought. In materializing a broad view of Cahokia, the use of scholarly peer reviewed journal articles was used.

Cahokia – a city lost, devoid of its great architecture, and its once prodigious radiance, is now encrypted, abandoned, but hopefully never forgotten. The fact remains, if I were to ask your common American spirit, about a once glorious Native American society, one would be quick to blurt out the mighty Iroquois, or to say nothing at all. However, what people generally seem to forget is that Cahokia in all of its glory is arguably one of America's oldest cities – if not the oldest. Furthermore, the greatest fact that Cahokia shared with the new world, was its brilliant architecture, bolstering culture, and its extensive trade routes. Consequently, you must be inquiring if all that I am saying is empirically correct, then what has happened to the city? Or more importantly, how could it have been forgotten? In this dubious question, where the answer was once left barren in the minds of many, hopefully, I can remedy you of this abstract burden.

Cahokia, expanded from the indigenous plots of early American soil, stretching

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from the coast of the Mississippi to the far outskirts of eastern Illinois, and there in the middle of the region lays the blossoming of the developing mound society. The development of the city took place around the start of 1000 A.D., and was reaching the apex of its heights, roughly in the mid-13th century (Hodges). During that time period the architecture was magnificent as the city grew in size, housing upwards to 15,000 Native Americans. This was impressive as, during that age of the city's peak it rivaled the size of early colonial Washington D.C. Now as impressive as this may sound, what is seemingly more impressive is how the author Glenn Hodges in a *National Geographic* article "Cahokia: America's Lost City", describes how the development of the city all took place at an exponential rate; as if the city was built in his words "overnight" – a big bang of sorts. Can you imagine that? For an agricultural society to demonstrate such growth before the coming of the industrial age can simultaneously be described as stupendous and horrific, as such extreme development implies an exorbitant amount of slave labor.

Yet if Cahokia was a slave nation, this view could serve as an early depiction in subcategorizing Cahokia as an early hegemonic society. If this assumption is correct this would imply that this city-state had a singular ruling individual – perhaps a priest, shaman, or king. Also, having the ability to display leadership is one thing, but having the ability to develop a vision and then to project it among a group of followers is divine like. Nevertheless, this idealism has not been confirmed, but as one can imagine ascertaining concrete information from a dead city lacking a uniformed writing and communication system, in a word, can be problematic. Subsequently, having absent knowledge of a definitive city-state code of uniformity, we are left with a dearth of questions but, an abundance of inconclusive theories.

Likewise, what Cahokia is known for and what separates it from the other city-states is the city's unique ability of supporting a growing populace, while still staying competitive with neighboring villages. Unlike any of the surrounding mound cities, Cahokia was able to develop not only more mounds, but was able to demonstrate a mastery of developing large mounds – as the city housed the largest mounds in the region. This was evidenced in an article written by archeologist Thomas Emerson. Through extensive research, Emerson was able to approximate that out of the many surrounding cities: Cahokia developed upwards to 120 mounds and is most notably credited for developing the region's largest mound, which still stands today known as Monk's Mound (Emerson). Cahokia's largest mound was named Monk's Mound by European settlers, after a group of French Monks who sought shelter on the outskirts of the colossal monument's plains. Additionally, Monk's Mound dwarfs in comparison the great Egyptian Pyramid of Khufu; as the height of the flat top of Monk's Mound stretches to the extremes of about 14 acres, expanding the limits of the surface's peak to have a larger cubic area than the base of Egypt's greatest wonder (Glenn). However, the beauty of this wonder has forever been obstructed, because in 1925 a tiny state park was built on top of the once scenic plot of real-estate (Glenn).

As disheartening as the story of the obstruction of Monk's Mound may be, I will illustrate the inspiring theories of what led to the emergence of Cahokia and its rise to prominence. Although a pervasive governing theory has yet to be devised, do not be

discouraged as continuous work is being conducted in hopes of uncovering a definitive answer. Nonetheless, there are many fundamental, logical theories that have been constructed over an extended period of time. For one, the rise of the city-state can be attributed to the locality from the center of the city to its close proximity of many connecting rivers and lakes. Additionally, as one may be able to surmise, a city built and known as a mound city, may have taken a particular affinity to agriculture, which is true as Cahokia's best works were encompassed of soil. Even though we know this much is conclusive, we do not know the extent to their agricultural prowess; meaning Cahokian's could be of horticulture society – agriculture lacking innovative systems such as fertilization, irrigation, or advanced methods of domesticating plants. But it should also be noted that, having a complex irrigation system was not of a necessity for Cahokians as fresh water was abundant in the surrounding area. Having this logistical advantage definitely afforded the indigenous people of the area an ability to not only produce expansive farms, but it also greatly influenced the environmental factors needed in support of an exponentially growing society.

Furthermore, having such rivers and lake resources made accessible led one archeologist to speculate that with such large bodies of water – such as the Missouri River, the Mississippi River, and Illinois River they had the ability to develop complex exchange routes (Peregrine). In a peer reviewed journal article entitled, “A Graph-theoretic Approach to the Evolution of Cahokia”, archeologist Peter Peregrine, hypothesized that due to the proximity of the rivers, Cahokia may have served as the epicenter of interregional exchange – Peregrine also preferred not to call it trade as it is yet inclusively known whether Cahokia is an egalitarian society or a hegemonic society (Peregrine). Upon looking at a map one can immediately tell that the geography of Cahokia was easily accessible to neighboring villages and maybe that is why it may have been pegged as the epicenter of exchange. Having the ability to exchange/trade a vast number of goods in general allows a city-state and its people to indulge in high culture, symbolic wealth and of differing foods. Likewise, sharing a logistical advantage would also attract the cultural elite, merchants, and people of unique skill sets to the city. With that being said, think of Rome and its glorious trade routes comprised of roads, this allowed the Roman cities to expand greatly and to become the envy of those around them. Additionally, one can also think about New York and its harbors. New York is predominantly known for its wealth, but in the past what drew the masses to the city, was the city's prestige and its ability to trade all throughout the region.

In one model construct, a renowned archeologist who devotes most of his time and research to the archeological studies of Cahokia is Timothy Pauketat. In his recent study Pauketat came to the conclusion that Cahokian's had a trade preference for items that were considered raw materials – with the intent of having Cahokian artisans craft goods as opposed to receiving finished goods from outsiders. For example, Pauketat found that “most imported goods were in fact raw materials – red flint clay, galena, hematite, Burlington chert, diabase, and (perhaps) salt” (Pauketat). He then goes on to explain, that in the region of greater Cahokia, foreign goods were found few and far between the homes of those indigenous to Cahokia. This basically goes to demonstrate that the

craftsmanship of the citizens of the city-state was apt and most likely far more advanced than the goods of those around them. Additionally, some of the goods that Cahokians developed from the raw traded material were “statuettes, pigments, tools, and ritual paraphernalia” (Pauketat). These, developed items can all be attributed to the development of what a singular nation state may need to depict and identify a secular culture – one that protrudes their existence and beliefs on to others which can also be perceived as a vehicle for disseminating culture.

Another fantastic set of observations made by Timothy Pauketat lays contingent on his beliefs that Cahokia was governed by a centralized government. This theory was developed as he studied some of the art, pottery, and resources that were made available to Cahokians. As Pauketat, was granted the resources to further his studies of the region’s area he noticed that the further he went away from the main city-state the less and less he saw Cahokian work. Simply, this means that if a centralized economy was existent in the regions surveying the main city or town, the more likely influenced the lesser cities of close proximity would be embellished with the central city. This is something to take notice to as culture plays a great influence in one’s sub-culture. Meaning that who or what one wants to emulate can be driven or foreshadowed by their depiction of their reference group. This is to say unlike the modern society that we live in today where our reference group is independent of proximity due to our expansive broadcasting networks – radio, television, and magazines – in less modern cultures proximity played a fundamental role in what you believed in.

In short exchange/trade was essential; location and the proximity to water resources were indispensable, but what led to the idea to develop such a city? Likewise, if one was to look for clues to unravel this conundrum, the answer may be conveyed based solely from a hegemonic perspective, as the prevailing theory revolves around the ideas of an individual. Often with power, one is able to project his vision hypothetically on to the eyes of many others, and in the case of Cahokia this ideology may be no different, as Glenn Hodges explains, that the conveying theory is that the city-state is the product of a visionary. The Visionary, most likely some sort of leader, prophet or even a group was said to have envisioned a more pervasive way of living that attracted many from near too far to participate in this vision (Hodges). That being said, if that was the vision it surely had paid off as mentioned Cahokia dwarfed by five times the size in comparison of the next largest early American city (Pauketat).

Yes Cahokia at its height was bolstered and prosperous but what still remains to be a great mystery is what led to its sudden demise. As one might infer with conventional wisdom is that upon the arrival of early European settlers Cahokia most likely met its demise. However, this was not the case as the demise of Cahokia precluded the arrival of Pre-Columbus settlers. Absent mystery there are some prevailing theories as to what happened to the Cahokians. For one the society relied so heavily on agriculture that severe changes in weather may have conflicted with their crop yields and may have deterred members of the populace from staying in the area.

Another theory may revolve around the notion that disease may have gotten to the population, which is a strong theory as highly populated and condensed city-states often

present a dangerous likely hood of an opportune bug to wreak catastrophic casualties on a population. In this theory, think smallpox, polio, and other diseases that caused wide spread destruction in short periods of time. Nevertheless, this all still remains to be theory as there is not one prevailing explanation as to why Cahokia fell to its demise arguably as quickly as it was brought up.

The overall timeline in reference to the beginning, its golden years, and demise was outlined by a team of Archeologist - Larry V. Benson, Timothy R. Pauketat, and Edward R. Cook as is outlined in an article entitled “Cahokia’s Boom and Bust in the Context of Climate Change”, gives you further insight on the maturation of Cahokia. From the works of Benson et al, Cahokia at its lowest came about during 900- 950 A.D. During this time the village most likely was of a low density, and lacked the makings of something great. By the time of 950- 1000 A.D., Cahokia was considered amongst its peers to be on equal footing, but not too far off. Subsequently, from the presiding times ranging from 1000- 1050 A.D., a big bang of sorts was taking place as the city-state was starting to organize and developed a level of esteem that many other tribes flocked to – the mound city was taking shape. In a sense this was the peak of the civilization both in terms of growth and popularity. Succeeding the once great level of prestige by the time of 1100- to 1275 A.D., the density of the populace that inhabited the city started to gradually dissipate but began the blending of material culture took place coupled with the political- economic contraction. Lastly, in a few short years the team of archeologists that in the time period ranging from 1275- 1350 A.D., the populace was seen emigrating in high volumes – which I once again must stress is not definitively known as to why the Cahokians decided to leave.

In conclusion, Cahokia was in my opinion a city before its time, as it showed instances of collusion, growth, and modern concepts of trade. Coincidentally, I must also concede that the lack of international recognition given in reference to Cahokia is extremely disheartening, as the remains of a once great civilization sits unrecognized and seldom explored in the backyard of America’s Midwest. In turn, I say this forecasted with a bit of irony, for as quickly as Cahokia grew in popularity in 1050 A.D., lost all of its prestige almost as quickly and is now today forgotten. In short, I hope I was able to convey a message of a grandeur, as Cahokia was a splendid specimen of early American civilization. Additionally I hope this paper finally puts to rest any misconstrued, stereotypical inclinations about early Native Americans; as evidenced by Cahokians, Natives hardly lacked innovation.

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Whozits & Watzits Galore

Diagnosing Ariel, the Little Mermaid, with Compulsive Hoarding Disorder

Rachel Lazar

Fifteen years ago, a guest would not have been able to walk through the home of Lee Sheur, the Director of Mutual Support Services in Northampton, MA. After opening the front door, he or she would have been greeted by stacks of newspapers, some as high as three feet. Also, on every available surface, there would be cardboard boxes stuffed with knickknacks and things like action figures, magic markers, musical instruments, picture frames, bobble heads, milk crates, even two hot pink hair salon dryer chairs and a fire hydrant (Jabr, 2013). Compulsive Hoarding Disorder is a disorder that has received rather scant investigation throughout history (Seedat & Stein, 2002). However, over the last several years, it has gained much attention from society. This attention has resulted in Compulsive Hoarding Disorder having its own distinct diagnosis in the newly released DSM-V.

The earliest recorded reference to hoarding was mentioned in the poet Dante Alighieri's *Divine Comedy*, written in the beginning of the 14th century. In the poem, Dante, with his guide, Virgil, had to walk through nine rings of Hell before he could reach Paradise. Each ring of Hell contained ghosts suffering increasingly harsher punishments, one after the next. As Dante entered the fourth circle of Hell, he found two mobs at war, fighting and throwing stones at each other. One mob suddenly cried "Why do you hoard?" While the opposite mob replied, "Why do you waste?" Virgil explained to Dante that these were the hoarders and wasters in life. Their lives were spent acquiring possessions, but by doing so, they shielded themselves from the eternal light; now, they were forever doomed in the fourth ring of Hell (Frost & Steketee, 2013 via Alighieri, 1954 pg. 73-74).

Many references to hoarding have appeared in a wide range of literature throughout the 19th century. Charles Dickens' character, Krook, in *Bleak House* (1862) was described as "possessed with documents" in a shop where "everything seems to be bought and nothing sold." In 1842, Russian author Nikolai Gogol wrote a novel called *Dead*

Souls, in which a rich man named Plyushkin showed characteristics of hoarding. The local peasants of the town he lived in called him the fisherman for his habit of “fishing” the neighborhood for “an old sole, a bit of a peasant woman’s rag, an iron nail, a piece of broken earthenware.” The term “Plyushkin syndrome” is still used today in Russian psychiatry to refer to someone with compulsive hoarding disorder (Frost & Steketee, 2013).

In 1908, Sigmund Freud (1856-1939) linked hoarding to the anal stage of psychosexual development. He believed the loss of control during toilet training was a traumatic experience and that the compulsive hoarder is still trying to gain back control and the ‘possessions’ that were lost to them so many years ago (Cluttergone, 2013). In the mid-19th century, psychologists began heavier research on hoarding, as New York City newspapers began swarming with stories on Homer and Langley Collyer, two brothers who were found dead in their home on 2078 5th Avenue, buried under 140 tons of items they had collected over several decades. Hoarding has been listed under the diagnostic criteria for Obsessive Compulsive Personality Disorder in the DSM III, DSM III-R, DSM- IV, and the DSM-IV-TR.

Before 1996, less than ten studies had been published on the topic of compulsive hoarding. By 2009, more than twenty articles per year were being published on the topic (Frost & Steketee, 2013). The articles range from topics such as the different objects or animals hoarders accumulate, the causes and genetics behind hoarding behavior, treatment for compulsive hoarders, co-morbidity of compulsive hoarding and other diagnoses, and the like. Over the last few years, compulsive hoarding has had increasingly more light shed on it, heavily attributed to the television show *Hoarders* airing in 2009 (Shulman via Van Pelt, 2011), as well as Professors Randi Frost and Gail Steketee’s publication of their book *Stuff: Compulsive Hoarding and the Meaning of Things*” in April of 2010. In their 290 page book, Frost and Steketee describe extreme case studies of compulsive hoarding and discuss the driving forces behind the illness as well as effective treatment options.

As compulsive hoarding has been listed as a symptom of Obsessive Compulsive Personality Disorder (OCPD), the relationship between compulsive hoarding and OCPD has been studied from multiple angles and in much depth. Research has shown increasing independency of compulsive hoarding symptoms and other OCPD symptoms (Mataix-Cols, 2010 & *Mental Health Weekly Digest*, 2010, pg. 84). So much so, this has led to Compulsive Hoarding Disorder being classified as its own disorder in the DSM-V, released in May 2013. The DSM-V states that compulsive hoarding disorder has a prevalence rate estimating between 2% and 5%; twice that of OCD, and five times Panic Disorder and Schizophrenia. It has always been clear that hoarding runs in families. The Johns Hopkins OCD Family Study diagnosed hoarding in 12% of first-degree relatives of people who hoarded (Frost & Steketee, 2013). Hoarding occurs more often in men than in women, and the likelihood to hoard increases with age (Frost & Steketee, 2013). Treatment for hoarding disorder has continued to show the independency of Compulsive Hoarding Disorder and Obsessive Compulsive Personality Disorder as well, as medications have a 14% effective rate on hoarders and as much as 50% to 80% on individuals with other OCPD like symptoms. Exposure and response prevention, the standard treatment for OCD, has rarely worked for individuals with hoarding disorder (Frost & Steketee, 2013). A more

recent treatment plan grew out of the cognitive-behavioral model of hoarding proposed in “Stuff: Compulsive Hoarding and the Meaning of Things” which includes office visits as well as in-home sessions focusing on acquisition, difficulty discarding, and disorganization. 50% to 70% of compulsive hoarding patients were considered treatment responders to that particular method. A quick Google search today will list dozens of programs and organizations that claim to offer precisely just that treatment.

Walt Disney Animated Productions produced a magical movie in 1989 called *The Little Mermaid*. *The Little Mermaid* is about a world beyond our conscious reality, a world under the sea, a world called Atlantica. Ariel, a 16 year old mermaid princess, is unsatisfied with her underwater life and longs to become a human, despite the warnings and reprimands of her father, King Triton, who ruled that contact between humans and merpeople was dangerous and absolutely forbidden. Ariel’s curiosity about humans propels her and her best fish friend, Flounder, to collect human artifacts from a sunken ship even though she does not know what they are. She did this instead of attending a concert she was scheduled to perform a song for her father, King Triton. Ariel, Flounder, and their seagull friend, Scuttle, discuss the artifacts, and Ariel hides them in a secret cavern under the sea.

One starry night, Ariel, Flounder, and her father’s advisor, Sebastian, the crab, follow a ship of humans. Peeking into the ship, Ariel sees the tall and handsome Prince Eric and falls in love at first sight. A storm causes the ship to start sinking and Ariel saves the unconscious Prince Eric from drowning, carrying him to shore and singing to him with her beautiful voice. She quickly leaves when he regains consciousness, so he will not discover that she is a mermaid. Eric is struck by her voice and vows to find his savior girl and marry her. Ariel, meanwhile, vows to find a way to become human and marry Prince Eric.

King Triton finds out Ariel is in love with a human, and in a rage, destroys Ariel’s cavern of human artifacts. Ariel is angered and decides to rebel against her father. Thus, she makes a deal with the evil sea witch, Ursula, to transform her into a human for three days in exchange for her beautiful voice, which Ursula uses magic to trap in a seashell. Consequently, Ariel is unable to speak or sing. Ursula tells Ariel that if she can get Prince Eric to kiss her she can stay human for all eternity. If by sunset of the third day the prince has not kissed her, Ariel will forever be under the possession of Ursula. Ariel transforms into a human and Eric takes her to his castle, not knowing Ariel was the one who saved him from during the shipwreck. Ursula gets jealous, disguises herself as a beautiful lady and seduces Prince Eric with Ariel’s voice, manipulating him to propose to her.

In a wedding disruption led by Scuttle, the seashell around Ursula’s neck breaks, restoring Ariel’s voice. Eric, realizing who Ariel was, rushes to kiss her, but the sun sets; the third day has come to an end, and Ariel transforms back into a mermaid. Ursula reveals herself, kidnaps Ariel, and a vigorous fight over the leadership over Atlantica begins. Just as Ursula is about to hurt Ariel, the little mermaid, Prince Eric kills Ursula, causing her spell to break and return to King Triton. Realizing that Ariel truly loves Eric, Triton willingly changes her from a mermaid into a human. Ariel and Eric marry on a ship and, of course, live happily ever after.

Ariel's quest to become a mute human and marry Prince Eric drives the entire plot of *The Little Mermaid*. What is not addressed is the deep rooted issue that Ariel, the red headed curious little mermaid, is herself a compulsive hoarder. By definition, the word hoard as a verb means "to collect and store away" (Nordquist, 2013). Many individuals have the desire to "collect and store away," to accumulate items and claim things for themselves throughout their life span. When is it accurate and appropriate to diagnose an individual with compulsive hoarding disorder? What makes Ariel, the little mermaid, a compulsive hoarder?

The Gale Encyclopedia of Mental Health defines compulsive hoarding as a combination of three factors: actions leading to an accumulation of a large number of possessions, having the inability to discard unnecessary items, and having difficulty organizing one's living space (Frey, pg. 760).



The first component of compulsive hoarding consists of actions leading to an accumulation of a large number of possessions. The Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision, or DSM IV-TR, classifies hoarding under diagnostic code 301.4; Obsessive-Compulsive Personality Disorder, or OCPD. The DSM IV-TR lists eight criteria; four of them present in an individual would be enough to diagnose one with OCPD. Number five states "is unable to discard worn-out or worthless objects even when they have no sentimental value" (DSM IV-TR, pg. 729). To combine *The Gale Encyclopedia of Mental Health's* and the DSM IV-TR's definition, component one of compulsive hoarding consists of not only accumulating objects, but accumulating objects

that often have no sentimental value; objects that can seem worthless. The first scene of *The Little Mermaid* shows Ariel and Flounder raiding the sunken ship for human artifacts. “There it is...” (pointing) Ariel says... “Isn’t it fantastic?” Ariel swims through the broken shacks of the sunken ship. Suddenly her eyes widen and her mouth opens. “O my gosh!... O my gosh!... Have you ever seen anything so wonderful in your entire life?!” she says to Flounder while swimming to pick up the shiny metal object, an object we know to be a fork. “O wow! Cool! But uhhh...what is it?” Flounder asks. “O... I don’t know!” Flounder hears sharks and gets scared. Ariel is distracted as she picks up another object. “Hmm, I wonder what this one is?” she asks, as she picks up a second item, an item we know to be a pipe, and slings it over her shoulder in a small peach colored sack. Ariel collected worthless objects with seemingly no sentimental value. They didn’t have sentimental value to her, as Ariel had no idea what the objects were. Ariel was a princess mermaid, and these were human artifacts she had never seen before. Ariel had component one of compulsive hoarding disorder, actions leading to a large accumulation of possessions that seem worthless.

The second part of *The Gale Encyclopedia of Mental Health’s* definition of hoarding is the individual being unable to discard accumulated objects. To quote the DSM-IV-TR again as well, pg. 729 under Obsessive Compulsive Personality Disorder reads “is unable to discard worn-out or worthless objects even when they have no sentimental value” (DSM IV-TR, pg. 729). One powerful reason for this is the tendency for compulsive hoarders to humanize their seemingly worthless possessions; they attribute human-like qualities to the objects. Therefore, they feel real and actual grief at the thought of parting with the objects (Frey, pg. 763). The scene following the raid of the sunken ship shows Ariel bringing the two objects she found to her seagull friend Scuttle excitedly. “Scuttle, look what we found!” “Human stuff huh? Eyy let me see! O wow...look at this...this is special...this is very very unusual!” “What? What is it?” asked Ariel, as she had no idea what the items were. “It’s...a... tinglehopper! Humans use these little babies to straighten their hair out, see?” (Scuttle uses the fork to twirl his hair). Ariel giggles. “What about that one?” asked Flounder. Scuttle, picking up the pipe, says “this I haven’t seen in years!... this is wonderful!...a banded, bulbous snarfblatt!” “Oooooo...” Ariel and Flounder both slowly say. Scuttle begins a story about the snarfblatt being from pre-historic times, when humans would sit around staring at each other all day. Ariel believed made up stories about her newly found objects, she called them by name, and she humanized her possessions. Therefore, she has no desire to discard the items. The anxiety and fear compulsive hoarders have when thinking of discarding their accumulated items is clinically called Disposophobia, or the “fear of getting rid of stuff.” Ariel had component two of compulsive hoarding disorder; the inability to discard unnecessary items, as she had made personal connections to the objects.

We don’t really get a sense of how bad Ariel’s compulsive hoarding is until after her conversation with Scuttle, she swims into her secret cavern, holding her two new objects. Her cavern is full of jugs and screws, candle holders and picture frames, books and statues. One of the most basic reasons why compulsive hoarders have a hard time keeping their homes organized is because they like to keep their hoarded objects private

and hidden. This is described as the third component to compulsive hoarding based on *The Gale Encyclopedia of Mental Health*. Non-compulsive hoarders, who although may collect items, like to organize and display their belongings. The modern English word hoard comes from an Old English or Germanic word meaning “to cover” or “to conceal” (Frey, pg. 760). *The Gale Encyclopedia of Mental Health* continues, “Researchers who have studied hoarding note that it is different from collecting items of interest to an individual or having some clutter in the home. Collectors usually keep their valued items well organized and often group them in attractive or informative arrangements that others with the same hobby or interest can enjoy. By contrast, hoarders rarely organize their acquisitions” (Frey, 761). Ariel’s secret cavern of human artifacts was deep in the ocean, hidden, not organized and was not displayed to all the other sea creatures at all. Ariel had component three of compulsive hoarding disorder; the difficulty organizing one’s living space as the hoarded objects she accumulated were hidden and not displayed.



As Ariel swims into her private cavern, full of her hoarded human artifacts, Flounder and Sebastian swimming behind her, she begins to sing one of the theme songs of *The Little Mermaid*. The song that many children can sing by heart summarizes that Ariel, is indeed, a compulsive hoarder, based on the three criteria from *The Gale Encyclopedia of Mental Health* and the DSM-IV-TR. “Look at this stuff, isn’t it neat?” she sings. “Wouldn’t you think my collection’s complete? Wouldn’t you think I’m the girl...The girl who has everything? Look at this trove, treasures untold, how many wonders can one cavern hold? Looking around here you think, sure, she’s got everything...” Her actions have led to an accumulation of seemingly worthless items. “I’ve got gadgets and gizmos a-plenty, I’ve got whozits and whatzits galore... you want thingamabobs? I’ve got twenty!

(she pulls out a box of assorted screws) But who cares? No big deal...I want more....” By calling her hoarded objects by names, Ariel has humanized her possessions, the leading cause of having the inability to discard of hoarded objects. The images of her cavern show that her possessions are not neatly displayed for others to see, but rather a mess of her private accumulation of possessions. Ariel, the little mermaid, was a compulsive hoarder.

Like most mental disorders in the DSM-IV-TR, in order to diagnose an individual with any particular disorder based on abnormal behavior, the behavior must be interfering with the individual’s daily life. According to the Bulletin of the Menninger Clinic, distress and impairment caused by hoarding is necessary in a compulsive hoarding diagnosis (Gilliam & Tolin, 2010). Ariel’s compulsive hoarding does interfere and cause impairment in her normal life. For instance, she was raiding a sunken ship in the opening scene of the movie. As a result, she missed a concert in which she was supposed to sing to her father, King Triton. Consequently, she disappointed her father by not attending. She forgot about the concert because she was raiding a ship for artifacts to hoard.

Compulsive Hoarding Disorder has gained much attention from society in the last several years, leading to its own diagnosis in the newly released DSM-V. Compulsive Hoarding Disorder can be broken down into three criteria based on *The Gale Encyclopedia of Mental Health* and the DSM IV-TR. The first component consists of actions leading to an accumulation of a large number of possessions, the second is having the inability to discard of the unnecessary items, and the third is having difficulty organizing one’s living space (Frey, pg. 760). The Disney film *The Little Mermaid* focuses on a curious mermaid’s quest to become human and marry her prince. What is not mentioned, however, is the fact that Ariel, the little mermaid, is a compulsive hoarder based on these three criteria. Ariel raids sunken ships for human artifacts that have no sentimental value and collects these items. She does not discard the items as she has made personal connections to these items by humanizing them and giving them names. Ariel has difficulty organizing her living space as she does not display the items; rather she keeps everything hidden in a secret cavern under the sea. The compulsive hoarding affected Ariel’s daily functioning. One example of this is that she missed her concert and disappointed her father, King Triton, because she was busy trying to find items to accumulate. Ariel, the little mermaid, was a compulsive hoarder.

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Fano Resonance in Coupled Mechanical Oscillatory Systems¹

Dmytro Moyseyev

Abstract

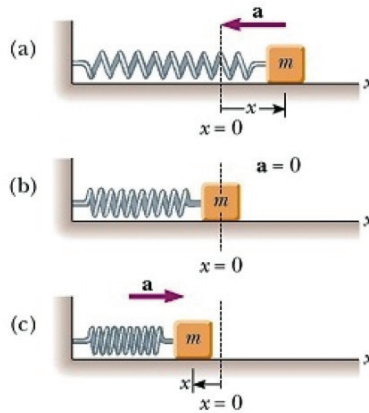
In this project, I consider excitations in various mechanical oscillatory systems and explore theoretically the resonance phenomena in mechanical oscillators. The main goal is to analyze two coupled mechanical oscillators without damping and derive conditions for Fano resonance in this system. The methods that I use to analyze this system of mechanical oscillators include theoretical analysis of the system of differential equations and graphical analysis of the solutions with various boundary conditions.

Oscillations occur when an object is disturbed from a position of stable equilibrium. This displacement from equilibrium changes periodically over time. We see that common phenomenon in our everyday life, but usually do not pay attention to it. Basic examples are the motion of the clock pendulum, of swings, the vibration of the string on a musical instrument, etc. There are a lot of different examples and in some cases people need to take oscillations into account. For example, in the areas of high seismic activity, architects and engineers create buildings with a seismic retrofitting, a system that will help the building to resist an earthquake. Another example would be an aerospace industry: when the plane flies, its wings are oscillating because of the wind that flies past them.

In this project, I will analyze three types of oscillations: simple harmonic motion, damped simple harmonic motion and forced simple harmonic motion. But the main purpose of this project is to investigate Fano resonance and its properties in mechanical oscillatory systems. First, let's review the basic type of oscillation, which is called simple harmonic motion. Consider a spring with an object attached to it that is lying on the fric-

¹ Completed under the mentorship of Prof. Gregory Aizin for PHY 1300: *Advanced General Physics I*.

tionless surface.



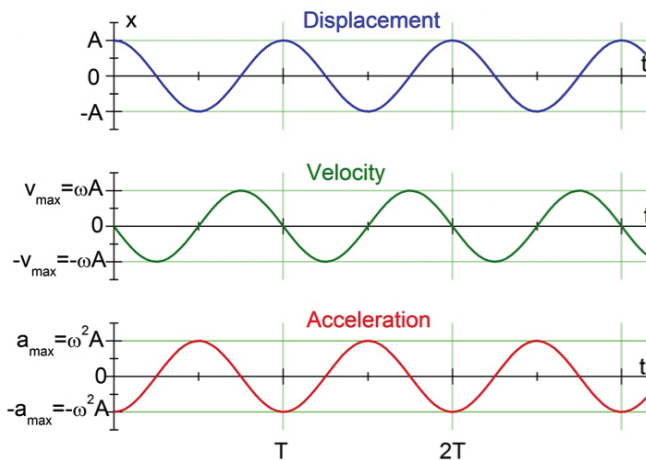
In this visual representation, you can see a cycle that this spring–block system goes through. Here a is acceleration of the block, m is the mass of the block, and x is displacement. It is a type of periodic motion in which the restoring force is directly proportional to the displacement. Any oscillatory motion has a frequency ω or, in other words, a number of oscillations it makes in one second. The simple harmonic motion can be represented by the following differential equation for displacement x :

$$m \left(\frac{d^2 x}{dt^2} \right) + kx = 0 \quad ,$$

and its solution:

$$x(t) = A \cos(\omega_0 t + \phi) \quad ,$$

where A is amplitude, m is the mass of block, k is a spring constant, t is time, ϕ is a phase constant and $\omega_0 = \sqrt{\frac{k}{m}}$ is angular frequency. In this graph you can see how displacement, velocity and acceleration change with time:



Since, in this case, there is no friction, the spring will oscillate continuously and never stop. Acceleration, in this case, is proportional to displacement but has opposite sign.

Let's look in detail at the situation when the damping is present. This oscillation is called damped simple harmonic motion. There is a friction or other drag force because of which the motion will die out eventually. It can be described by the following equation, in which b is a damping constant, and ω' is an angular frequency of the damped oscillator:

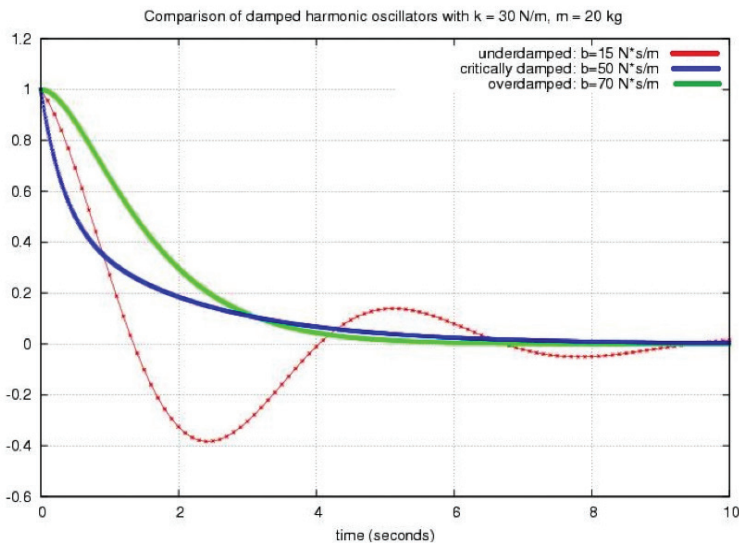
$$m \left(\frac{d^2x}{dt^2} \right) + b \left(\frac{dx}{dt} \right) + kx = 0 \quad ,$$

$$x(t) = A e^{-bt/2m} \cos(\omega' t + \phi) \quad ,$$

where $\omega' = \sqrt{\omega_0^2 - \frac{b^2}{4m^2}}$. There are three distinct cases of damped harmonic motion. It can be critically damped, over damped or under damped. Let's discuss each of them in detail.

A critically damped system converges to zero as fast as possible without oscillating. An example of critical damping is the door closer seen on many hinged doors in public buildings. The recoil mechanisms in most guns are also critically damped so that they return to their original position, after the recoil due to firing, in the least possible time. $b^2 = 4mk$ is the condition for critically damped oscillator, because when this condition is true $\omega' = 0$.

If $b^2 < 4mk$, then this oscillation would be under damped. In order for this to be true the damping constant b must be relatively small. We call the motion over damped if $b^2 > 4mk$. The damping constant b here is relatively large. In the following graph, where displacements are plotted as functions of time, all three possibilities can be seen:



Another type of motion is a forced oscillation. Imagine the block that we have used as an example in the beginning but this time pretend that someone is pushing this

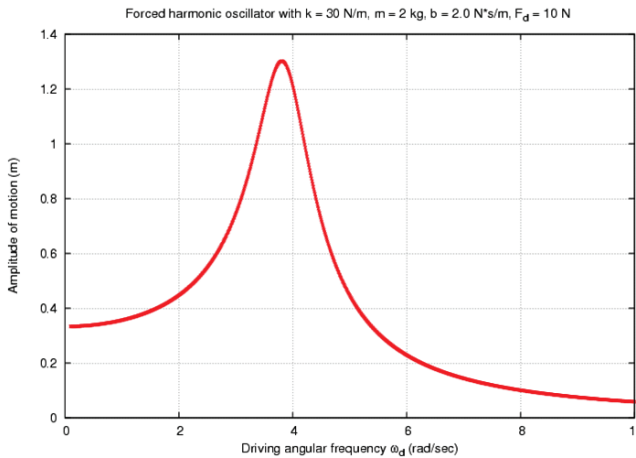
block periodically. This system has two characteristic frequencies: first, ω_0 , is natural frequency and the other one, ω_d , is the frequency of the external driving force. The condition, when $\omega_d = \omega_0$, is called resonance. Under this condition, the amplitude approaches the maximum value.

All mechanical structures have at least one natural angular frequency and when one of these frequencies matches up with the frequency of the external driving force destruction may happen. The following differential equation describes the displacement as a function of time of the forced oscillator:

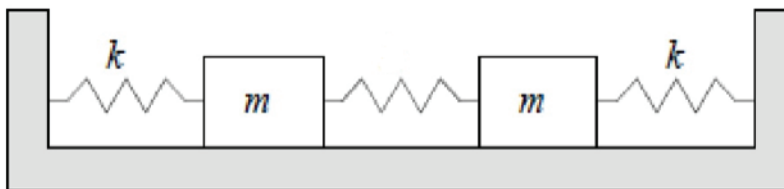
$$m \left(\frac{d^2x}{dt^2} \right) + b \left(\frac{dx}{dt} \right) + kx = F \cos \omega_d t,$$

$$x(t) = A' \cos(\omega_d t + \varphi),$$

where $A' = \frac{F}{m \sqrt{(\omega_0^2 - \omega_d^2)^2 + 4\lambda^2 \omega_d^2}}$, F is applied force and $\lambda = \frac{b}{m}$ is frictional parameter. In the following graph, the amplitude A of the forced oscillator is plotted as a function of the driving frequency ω_d :



The last one and the most important oscillation that we will look at is a Fano resonance. Earlier it was said that at certain frequencies amplitude can reach the maximum value. Moreover, some physical systems may exhibit the opposite condition, when their response is suppressed if some resonance condition is met. This was discovered by Ugo Fano in 1961. Imagine that you have not one but two objects attached by the springs to the walls and also connected by another spring, see figure:



The periodic force is applied on the first block and it starts to oscillate. The second block also becomes excited because it is connected by a spring to the first one. It can be represented by the following system of differential equations:

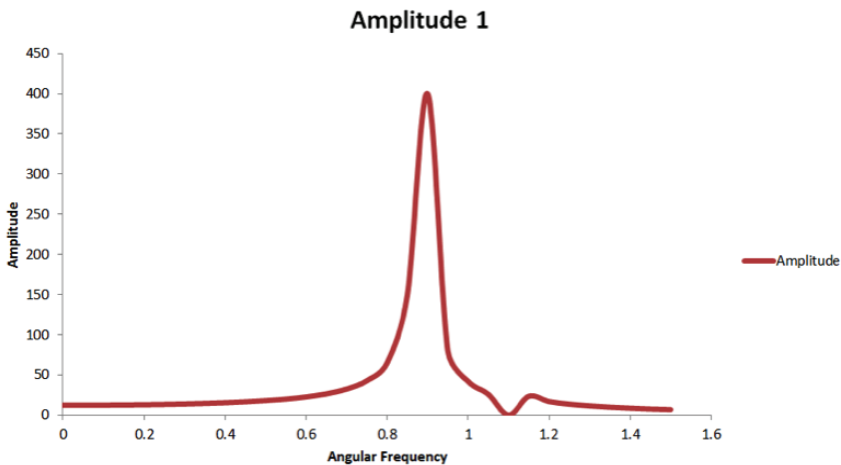
$$\ddot{x}_1 + \lambda_1 \dot{x}_1 + \omega_1^2 x_1 + v_{12} x_2 = F \cos \omega T \quad ,$$

$$\ddot{x}_2 + \lambda_2 \dot{x}_2 + \omega_2^2 x_2 + v_{12} x_1 = 0,$$

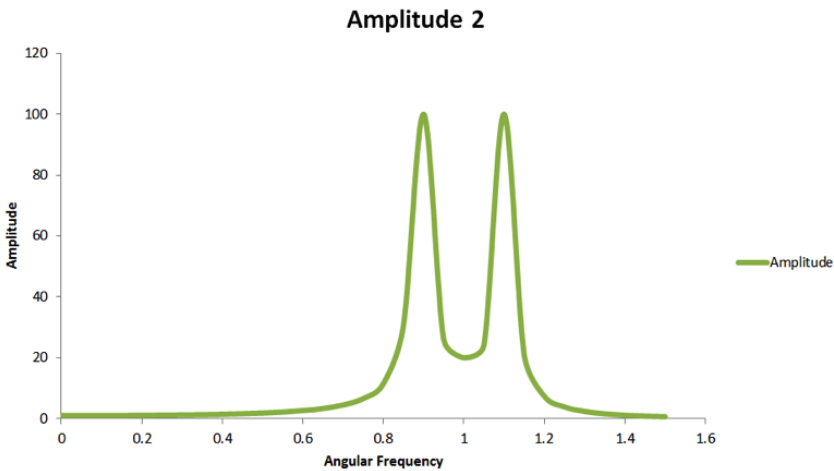
where $\omega_1 = \sqrt{\frac{k_1}{m_1}}$, $\omega_2 = \sqrt{\frac{k_2}{m_2}}$, $\lambda_1 = \frac{b_1}{m_1}$, $\lambda_2 = \frac{b_2}{m_2}$ and v_{12} describes the coupling of the oscillators. If you neglect the damping force or friction each block will have amplitude of oscillation:

$$A_1 = \frac{F(\omega_2^2 - \omega^2)}{(\omega_1^2 - \omega^2)((\omega_2^2 - \omega^2) - v_{12}^2)}, A_2 = \frac{F v_{12}}{(\omega_1^2 - \omega^2)((\omega_2^2 - \omega^2) - v_{12}^2)}.$$

In the following example the system has $F = 10$ and $v_{12} = 0.01$. The natural frequencies are $\omega_1 = 0.9$ and $\omega_2 = 1.1$. Both oscillators are in the state of resonance and the amplitudes reach the maximum value when driving angular frequency ω is equal to 0.9 and 1.15. Here, you can see the graphs of both amplitudes:



Fano Resonance can be used in many applications. Andrey Miroshnichenko and his colleagues in the article “Fano Resonance in Nanoscale Structures” discuss an efficient principle that could be used in optical transistors, switches, and logical gates. It is based upon the concept of optical bistability which is an attribute of certain optical devices in which two resonant transmissions states are possible and stable, depending on the input. The photonic crystals are periodic optical nanostructures that affect the motion of photons in much the same way that semiconductors affect electrons. Their use enables the system to be of a size of the order of the wavelength of light and consume only a few milliwatts of power. And using Fano resonance bistability could be achieved in many optical devices on photonic-crystal platform.



Boris Luk’yanchuk, a physicist and professor in Nanyang Technological University, and his research team showed that oligomers (, finite clusters of plasmonic nanoparticles), can exhibit sharp Fano resonances. Oligomers are molecular complexes that consist of a few monomers. Many oils are oligomeric, such as liquid paraffin. Plasticizers are oligomeric esters widely used to soften thermoplastics, such as PVC. In oligomer nanostructures, Fano resonance excitation is based on the coupling of the antiparallel dipole modes. The combination of the plasmon modes of each constituent nanoparticle leads to the formation of collective plasmon modes in the whole structure. Such strongly coupled particle aggregates show much higher sensitivities to structural and environmental changes as compared to uncoupled particles.

Ranjan Singh, Ibraheem A. I. Al-Naib, Martin Koch and Weili Zhang discovered through their research the occurrence of sharp Fano resonances in planar terahertz metamaterials. Metamaterials are artificial materials engineered to have properties that may not be found in nature. Other researchers have found that by using certain materials, like gold and copper, arranged in certain patterns and shapes, they can combine the properties of those materials. Metamaterials can guide light around an object, rather than reflect or refract the light. Terahertz metamaterials, a new class of composite, artificial materials

which interact at terahertz (THz) frequencies can exhibit sharp Fano resonances. These structures can have a multitude of applications including notch filters and highly selective narrowband THz emitters, as well as highly sensitive terahertz-based sensors for chemicals or bioagents.

Another example of Fano resonance applications is electromagnetically induced transparency, a phenomenon that drastically improves the optical properties of a medium by creating a transparency window at a normally highly absorbing atomic resonance, and by greatly enhancing the medium's dispersion. As you can see, Fano resonance applications can be found in a numerous different fields, such as atomic physics, nuclear physics, condensed matter physics, circuits, microwave engineering, nonlinear optics and nanophotonics.

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Occidental Perspectives and Western Ideals¹

Kenley W. J. St. Vil

It is difficult to define Occidentalism without looking back to its origin and the perspectives that defined it throughout history. In the *Oxford English Dictionary*, the concept of Occidentalism is defined as “Western customs, institutions; characteristics” (OED). But, what are the Occidental values? How does Occidentalism affect Western civilization? In the book *Occidentalism: The West In The Eyes of Its Enemies* (2004), the authors Ian Buruma and Avishai Margalit define Occidentalism as the ideological view of the West by others. Buruma and Margalit decide not to describe Occidentalism by chronological order, but clarify its contemporary idea:

These strands are linked, of course, to form a chain of hostility—hostility to the City, with its image of rootless, arrogant, greedy, decadent, frivolous cosmopolitanism; to the mind of the West, manifested in science and reason; to the settled bourgeois, whose existence is the antithesis of the self-sacrificing hero; and to the infidel, who must be crushed to make way for a world of pure faith. (11)

Occidental ideology is patriotism; it is relevant to one’s national culture. It shows respect for the immortal fame of a warrior’s choice to give his life for the freedom of his country. Occidental ideals unify society. As opposed to Occidental ideologies, Western countries do not believe in religious and cultural matters but rather have their belief founded in materialism, economic growth, development and industrialization. Because of the exploitation of the less fortunate in the market system of Western countries, Western ideals are forms of dehumanization.

¹ Completed under the mentorship of Prof. Robert Cowan for ENG 2400: *Freshman Composition II*.

In Thucydides' History from *Thucydides (c.460/455-c.399 BCE): Pericles' Funeral Oration From the Peloponnesian War (Book 2.34-46)*, we find a speech of the Athenian military leader, Pericles, which discusses the value of democracy after the Peloponnesian War. He speaks favorably of those who died in the war for the glory of Athens and says,

for this offering of their lives made in common by them all they each of them individually received that renown which never grows old, and for a sepulcher, not so much that in which their bones have been deposited, but that noblest of shrines wherein their glory is laid up to be eternally remembered upon very occasion on which deed or story shall call for its commemoration. (Halsall)

From this statement we see that Pericles viewed the death of a warrior to be glorious. Someone who offers his life for the benefit of his country is rewarded with immortal fame and he will be remembered eternally in the history of his society. People will testify about his generosity, virtuousness and loyalty to his society all around the world. The concept of immortal fame is deeply embedded in the values of countries rooted in Occidental ideologies. Occidentalism is nationalism.

In the chapter "The Occidental City," Buruma and Margalit talk about self-sacrifice in Prussian literature during the 18th century and mention that, "Thomas Abbt, a mathematician wrote a famous essay called 'Dying for the Fatherland.' He extolled to his fellow Prussians the 'pleasure of death... which calls our soul like a Queen from its prison... and finally gives the blood from our veins to the suffering fatherland, that it may drink and live again'" (Buruma, Margalit 50-51). We can see that during the German Enlightenment, heroic death, in Eastern countries, was worthy of praise. It is in the occidental belief system that a warrior's death should be considered nobility. It is part of their culture to sacrifice their life for their country. Occidentalism is nothing less than patriotism and it differs from Western ideals.

In order to talk about Western civilization in European societies, the authors refer to the book called *Merchants and Heroes* by the German writer Werner Sombart, which was written in the second year of World War 1. Buruma and Magalit describe how Sombart sees the war as "an existential battle, not just between nations, but between cultures and worldviews, or Weltanschauungen. England, the land of shopkeepers and merchants, and republican France represent 'West European Civilization,' 'the ideas of 1789,' and 'commercial values' (ibid 52-53). In this statement, Sombart differentiates between the protagonist traders, or capitalists, and the nationalists, or heroes. Sombart saw World War 1 as a struggle between religion and a foundation of values. It was a battle between traders and nationalist. For further explanations the authors Buruma and Margalit add, "merchants, whether they are petit bourgeois or busy men of the world, are interested in nothing but the satisfaction of individual desires, which 'undermines the very basis of a higher moral sense of the world and belief in ideals'" (ibid 54-55). The merchants who represent the West are selfish; they see ways for themselves to prosper without regard for the struggle of others. Traders look for individual ways to find comfort in the society, but the choice of

warriors or heroes to face death in Eastern countries is unselfish.

In reference to selfishness of the higher class in a hierarchal modern society, we have seen in the movie *Brazil* (1985), by Terry Gilliam, how the upper class, because of their addiction to mechanizing their society and making more money, do not care about the poor. They have dinners all the time, while the poor are dreaming what they are going to eat. The rich exploit the poor to keep their country moving forward and to expand their money. We have seen how explosions happened many times in developed countries. The selfishness of those citizens makes them blind; they are not able to investigate the real cause of repetitive acts of terror. In fact the cause of terrorism in Western countries remained undefined because the mind of the West is so occupied by industrialization and development for self-comfort. This idea of the Western civilization devalored Eastern ideals and causes the West to be seen as an enemy of occidental countries.

We have also observed, in *Brazil*, that sometimes explosions that occur during working hours are not acts of terrorism, but are the result of the misuse of machines in the factories. Sometimes workers are not happy with their jobs and they act foolishly. For example, we saw the main actor, Jonathan Pryce who is called Sam Lowry in the movie, push something into one of the tubes from his office until that caused the building of the factory to explode. In fact, he didn't mean to destroy his workplace because he was surprised when he first heard the explosion. Later, we saw that in order to protect the lady who Sam loved, he risks his life in the bureaucratic and rigid system of the West. In the West, workers are involved in a system that ends their individual freedom. If those in power identify someone as an obstacle to their progress, they arrest the person and put an end to his life. That's why, when they found Sam sleeping with the woman considered a proletarian, they killed the woman and arrested Sam. The mind of the West involves egoistic ideals.

To further elaborate on the subject in the chapter "Mind Of the West," Buruma and Margalit make this analysis: "The mind of the West is capable of great economic success, to be sure, and of developing and promoting advanced technology, but cannot grasp the higher things in life, for it lacks spirituality and understanding of human suffering" (Buruma, Margalit 75). By this statement, they are saying that Western ideals revolved around individualism, and technological progress. The West does not have a religion, but rather it values what is tangible or factual, such as money or building factories for industrial and economic progress. The West believes in business and scientific theories, and emphasizes rational thinking in refusing to achieve anything by faith, but instead, by calculations and statistic evaluations. Western ideals differ from Eastern ideals for they lack spirituality, which is the base of all occidental countries.

As a whole we see that Occidental ideals refer to an attachment to cultural roots and values, or the generosity of people among the society to work together for a common good. Eastern countries make sure that warriors are remembered and honored for offering their life for the freedom of their societies. Occidental ideals are healthy because they promote humanity in a unified society. The West sees itself as an opponent to Occidental countries because it doesn't value any religious belief. Rather, it fights for money and exploits less fortunate countries and enriches its properties and makes ways for their own prosperity through the creation of business and the mechanization of the industrial mar-

ket. Western ideals are not healthy because they destroy one's right to religious and cultural roots for the benefit of those in power.

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SUBMISSION GUIDELINES

General Guidelines

All manuscripts should be submitted electronically as Microsoft Word 2007 (or later) attachments to Professor Robert Cowan (robert.cowan@kbcc.cuny.edu) and include a working e-mail address and telephone number for both the student and mentor. Submissions should be in 12-point font and double-spaced throughout in a legible typeface like Times New Roman or Cambria.

Lists of Works Cited

The biggest problem with our submissions is that the citations are woefully insufficient. Articles should include a list of Works Cited and be properly referenced according to the guidelines of the Modern Language Association, American Psychological Association, or other citation system appropriate to the discipline for which they were written. Please do not give incomplete bibliographic references.

We do not publish:

- Computer science papers that consist mostly of many pages of code
- Art reviews of exhibits that are no longer running
- Class assignments that are letters to officials
- Papers that are basically biographies of famous persons
- Class journals

We are unlikely to publish:

- Papers that are hand-written, unless they include exceptionally beautifully drawn diagrams
- Overviews of topics, unless they include a summary of recent developments in the field
- Art history papers that have no illustrations of the work being discussed
- Papers by students we have already published, unless they are really much better than other related submissions for that issue
- Personal essays, unless they also make an argument about a topic

What we are looking for:

- Articles approximately 3,000-5,000 words, which may include notes, diagrams, and/or illustrations
- An argument, not just a summary of other's arguments
- In-paragraph citations that are clearly connected to the Works Cited list
- As few reference sources as possible

Deadlines

August 1 for the Fall issue and February 1 for the Spring issue.

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