THE SCRIBLERIAN

Spring 2024 Edition

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Argumentative- English 1010

1st Place Winner: Ju-Hsuan Wu, “Cigarettes Issues and Solutions”

For Professor Justin Call

INTRODUCTION

On my fathers side of the family, there is a history of tobacco addiction. Due to long-term smoking, six of my family members passed away mainly because of bronchitis lung cancer. One of them, my grandfather, passed away right on the day of my elementary school graduation. Cigarettes took his life and made me face the death of a loved one for the very first time in my life. I still clearly remember how my parents and other relatives felt when they knew my grandfather, who was sixty years old then, was diagnosed with the last stage of bronchitis cancer. “This day has to come anyway,” said my aunt. My family had no tears, though they were sad because they had already thought that this result would come to my grandfather. There was more calmness than sadness. My family had no choice of the diagnosis since they had been persuading my grandfather to quit smoking for a long time. More than that, besides bronchitis lung cancer, the cancer cells even spread to his digestive system and caused colorectal cancer. My mother, who is a nurse, said that maybe my grandfather wouldn't die just because of bronchitis lung cancer, colorectal cancer is the one that made it worse.

Overall, cigarettes are to blame. If my grandfather had stopped smoking, there would be less chance that he could get bronchitis lung cancer, and even less chance to let the cancer cell spread to his digestive system and cause colorectal cancer, which was his main cause of death. Cigarettes are really the most lethal items in the history of human civilization and the reason will be stated in the background section. They have caused so many deaths in the world, not only six members of my family, but the lives of eight million people every year (“Tobacco").

BACKGROUND

How It Started

Dating back to the 19th century, lung cancer was once a very rare disease in the human world; however, mechanization and mass marketing in the late 19th century popularized the smoking habit, resulting in a global lung cancer epidemic. An article published by the British Medical Journal states that, “Cigarettes cause about 1 lung cancer death per three or four million smoked. Cigarettes cause about 1.5 million deaths from lung cancer per year, a number that will rise to nearly two million per year by the 2020s or 2030s (Proctor).” Cigarettes started causing serious problems when the tobacco industry came along and this is something we really need to be concerned about!

Cigarettes contain carbon monoxide, tar, and toxic chemicals such as benzene, arsenic and formaldehyde, which can cause serious damage to our health (“Tobacco”). It also contains nicotine, a very addictive substance, that can affect the smokers’ mental health. An article published by Purdue University states, “Among current smokers with a lifetime history of depression, anxiety, anxiety with depression or major depression, they smoke more cigarettes, smoke more frequently and have a higher level of dependence.” (2022) Meaning that most smokers smoke when they feel depressed. It’s correct that smoking can create an immediate sense of relaxation, but it does not actually reduce anxiety and stress. The relaxed feeling is just temporary. Just a while after smoking, withdrawal symptoms will soon occur and increase craving for smoking. Furthermore, smoking is one of the ways to temporarily reduce the withdrawal symptoms which causes the cycle going on and on.

One time, I got a chance to ask one of my friend’s friend if he has ever wanted to quit smoking and why. He answered, “No. I know it will affect my health, but at least smoking gives

me a better feeling, and as long as it won't affect others, I don't really care." I understand how much he relies on smoking to feel better, but it's a fact that smoking cigarettes affects both smokers and non-smokers' health. The CDC proposed some information about health effects and problems caused by secondhand smoke (2022). A brief exposure to secondhand smoke can cause immediate harm. Even if you don't actually smoke, secondhand smoke can also cause health problems such as heart disease, stroke, and lung disease or cancer. It is also a severe risk for children to have respiratory infections, ear infections, and asthma attacks. In babies, secondhand smoke can cause sudden infant death syndrome (SIDS).

Another serious problem with purchasing cigarettes is that it also results in financial losses for smokers and can make many parts of the world even poorer. Besides paying for the cigarette itself, there is also an additional tax to pay. Tobacco is taxed at both the federal and state and sometimes even local levels. This leads to a problem, low income smokers still have to pay the same amount of tax as the people with a higher income. Therefore, this situation will make lower income individuals devote a higher percentage of their income to paying the tobacco tax than higher income individuals do.

Besides the smoking tax, the CDC also mentioned the cost in medical related expenditure due to smoking which can also affect a smoker's economic expenditure seriously. In 2018, cigarette smoking cost the United States more than $600 billion—including more than $240 billion in healthcare spending; nearly $185 billion in lost productivity from smoking-related illnesses and health conditions; nearly $180 billion in lost productivity from smoking-related premature death; and $7 billion in lost productivity from premature death from secondhand smoke exposure (2022). According to the data, smoking can really affect a country's economy. It

might not make a country collapse, but for a poorer country, such as a developing country, this might be a heavy financial burden for them.

Because cigarettes are such a big market, the tobacco manufacturers focus more on the user, especially teens, for earning a much higher profit. However, this can involve some ethical issues throughout the advertising process. Tobacco advertising tries to make smoking appealing, which can increase teens' desire to smoke. People might ask, "Isn't it illegal to sell or market tobacco products to people under the age of 21?" It is, but the FDA said that if each tobacco product advertisement bears the required warning statement, it is then legal (2020). Teens are potentially surrounded by cigarette advertisements, such as watching TV or posters around some public areas. That is a result of conflicts between the laws.

Lastly, the cognitive globalization of tobacco products threatens the autonomy of states and the government's ability to protect their citizen's health. It is also against the principle of non-maleficence. Since there is not a safe level of tobacco use, anything that helps promote the tobacco industry is effectively malicious and unethical ("Ethical and legal aspects of global tobacco control").

How It's Going

Nowadays, tobacco is taxed at the federal and state and sometimes even local levels. It is believed that raising cigarette prices through increased taxes is a more effective tobacco control policy measure for reducing smoking behavior. However, the information provided by the National Library of Medicine (NIH) mentioned that the increasing tax rate is only effective for youth, young adults, and persons of low socioeconomic status. "There is a striking lack of evidence about the impact of increasing cigarette prices on smoking behavior in heavy or long-

term smokers, persons with a dual diagnosis and Aboriginals." So, even though the smokers have a low income, if they are already a long-term smoker, they wouldn't stop smoking because of the increasing tax rate.

Furthermore, on December 20th, 2019, the Tobacco 21 legislation was enacted. The T21 law applies to sales of tobacco products—including cigarettes, smokeless tobacco, hookah tobacco, cigars, pipe tobacco, electronic nicotine delivery systems including e-cigarettes and e-liquids—to anyone under 21 years of age (FDA). It is believed that raising the minimum sales age for tobacco products to 21 is an important strategy to reduce youth smoking and other tobacco use. It will help prevent young people from starting to smoke and reduce death, illness and medical costs caused by tobacco use ("Raising the Tobacco Age to 21"). However, according to the Centers for Disease Control and Prevention (CDC), "About 4 of every 100 middle school students (4.0%) and nearly 15 of every 100 high school students (14.6%) reported that they had ever "tried" two or more tobacco products" (2022). In addition, I conducted a survey and as the pie chart below shows, out of thirteen smokers, 7 people reported that they started smoking during middle school, 5 people started in high school, and 1 person started during college. As the information shows, there is still a large percentage of smokers who started smoking at a very young age. And even though many parts of the world have been making laws to prevent people from smoking, the amount of smokers hasn't really decreased.

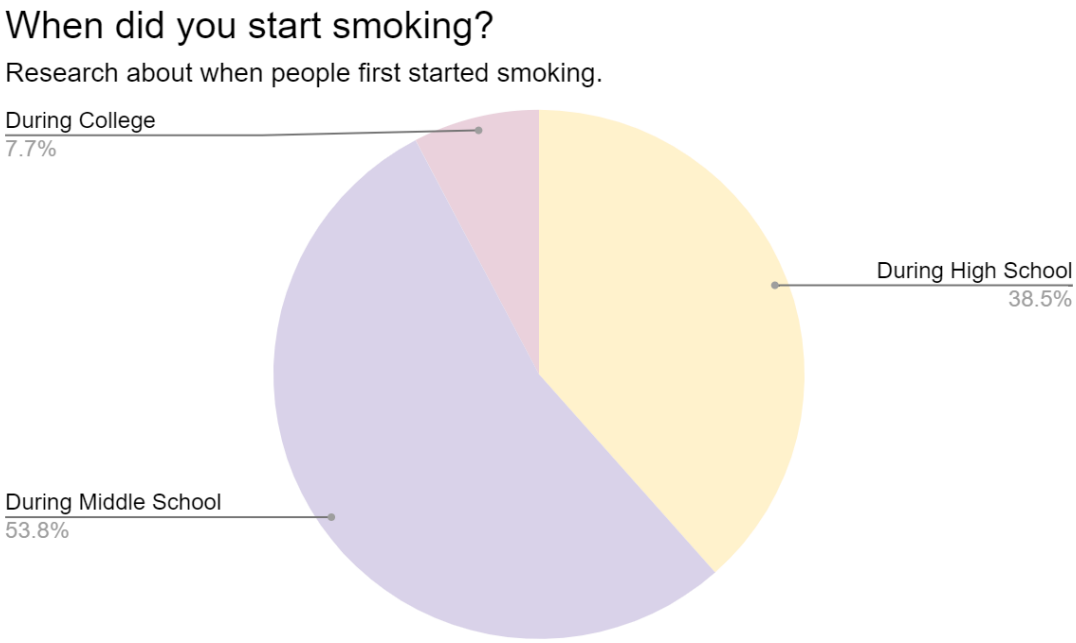

Figure 1: Percentage of When People First Started Smoking

PROPOSAL

Possible Solutions

One way to reduce people's chances of smoking is to simply make tobacco products illegal and withdraw them from the market. People who are afraid of laws and don't want to go against them will definitely stop smoking, but the premise is that these people must be non-long-term smokers. As the previous paragraph mentioned, for those who have been long-term smokers, withdrawal symptoms will occur more often throughout the quitting process and increase craving for smoking. This leads to a cycle of trying to quit, but giving up in the middle of the quitting process. Long-term smokers can’t easily control themselves and rely on smoking a lot. Those smokers might eventually find more ways to obtain access to cigarettes. They will likely create more crime as a black market or other illegal organizations begin selling cigarettes.

The US market size of tobacco was more than 30 billion USD in 2011 (Zheng), whereas the global market size in 2018 was estimated at around 814 billion USD (British American Tobacco). Tobacco's sector contribution has been positive to the economy in many tobacco producing countries. If the tobacco factories are closed, it will impact a country’s economy. Though cigarettes are really not a good thing in our lives, the factories can raise many families of the workers.

Banning smoking is a feasible action, but it is not feasible in the short term. If we make cigarettes illegal, we need a step-by-step process that will lead to better results. The best approach at hand is a more progressive education of young people.

The reason for targeting young people with education is to reduce the likelihood that they will grow up to smoke. The education process may take ten to twenty years, however, during that time the number of older smokers will decrease because of deaths, which will also increase the number of people who don't smoke because they were educated when they were younger. After a couple decades, when the educated people are at a specific point in time and the non-smokers achieve a certain percentage, then we can try to make laws to restrict use of cigarettes and start removing them out of the markets. By that time, people may have already thought of the tobacco factory unemployment crisis and may have already changed their career. Less economic and crime issues will happen.

Proposed Solution

Taking into account the multifaceted aspects and complexities of the matter at hand, health education about cigarettes to the young will be the most effective and feasible solution according to the two solutions provided in the last section. I know these kinds of education is already provided in some schools; however, they are not mandatory and not a long-term course.

In order for the education result to be more effective, health education about cigarettes needs to be a long-term mandatory course to all students from preschool to high school.

Before all the health education classes start in school, teachers should also attend training sessions for two hours every week for three months. The training class will be held a couple times in a week, so the teachers who are getting trained will have options which day they want to attend. The trainers will be the people who work at the smoking cessation counseling because they often have better ways of persuading a smoker to quit smoking, which can also be used to educate people who aren't smoking. And, since this will be a mandatory course that the government agreed to and wants to implement, there will be funding provided for the trainers. Just like other training classes, a certificate will be given out for the teachers for proving that they have completed the training after a final exam.

After teachers have finished the training, the course can start in schools. According to the child development theory of French psychologist Jean Piaget and the moral development theory of American psychologist Lawrence Kohlberg I learned in college Psychology-1010 class, there are differences in the psychological formation and perception processes of different learning ages. Because of the differences, different types of courses are needed for students of different ages.

Kids in preschool, generally before seven years old, are in the preconventional morality stage. In the preconventional morality stage, they obey rules to avoid punishment or gain concrete rewards. This is a very important period of time for kids to learn rules and give them all the easy information for them to obey the rules. Teachers and parents could show some cartoon videos about why smoking is bad. In the video, there might be a cute character who everyone loves and likes to hang out with. After a few months, the character started to smoke and his

friends stopped playing with him and don't like him anymore. Children need and love having friends, so when they see that the cute character has no more friends after smoking, they might start to think that if they smoke in the future, they won't have friends. Another video may show a character being unhealthy and sad due to smoking. Kids in this stage also learn by observing others, so after watching someone doing something and get a reward, they'll then copy to try to get a reward they want or either watch someone get punished making them not want to do a certain thing, for example, smoking. This kind of course should be held twice a week, twenty minutes a time, as a class in preschool in order to print the consequences of smoking in the children's mind.

After entering elementary school, children will also often go through the concrete operational stage of cognitive development. In this stage, children gain the mental operations that enable them to think logically about concrete events. And at around the age of nine, they'll also be in the conventional morality stage. Children in this morality stage uphold rules to gain social approval or maintain social order. They started to think and care for others, especially their loved ones, such as their parents and siblings. The course should be held twice a week as a class in preschool and since children can only think concretely, health education teachers can tell the facts about smoking in a simple and easy-to-understand way to let students understand the dangers and the effects on people after smoking. Lessons may include some data with visual graphs that can specifically show the impact on smoking. After the lessons, students may be surprised by the data with big numbers and will start to think of their family. The students might start telling their family what they learned in school which is also a good way that can reflect how well they understand the cons of smoking. The course should be a twenty-minute class once a week as a class in elementary school.

By the time they enter middle school, children tend to enter the formal operational stage of cognitive development, which means they can begin to reason abstractly and have the ability to accept other people's perspectives. Schools should invite speakers to school every two weeks. The speaker may be a healthcare worker who has seen lots of smoking patients, who could talk about the biology effects after smoking. It can also be a current smoker, who could talk about how bad they feel when they smoke and the pain of trying to quit smoking, but can't. Or maybe a person who successfully quit smoking, but has a very difficult time during the quitting process. Students will start learning the serious side of smoking, which may get rid of some of their idea that smoking is cool.

And as teens emerge adulthood, they will gradually enter the highest stage of morality reasoning, the postconventional morality reasoning stage. People who reach this stage judge moral issues based on deeper principles and shared ideals rather than self-interest or adherence to laws and rules. Health course for smoking could be held every month, thirty minutes a time. The lesson can vary depending on the current problem or what the teachers think is important to let their teen students know. There should be some discussion about the facts and dangers of smoking in that time since they could think of more ideas and can use the peer power to influence others not to smoke.

When people enter college, they are more likely to be independent from others. There is no need for smoking health courses for college students. I believe that ten years of health education from preschool through high school can have a huge impact on outcomes. If college students still want to smoke, there is nothing we can do because they are already independent adults who have the right to make decisions about their own behavior.

CONCLUSION

Cigarettes are really the most lethal items in the history of human civilization. The chemical substances in cigarettes not only affect the physical and mental health of smokers, but also affect non-smokers who are surrounded by second-hand smoke. It also has a huge financial impact on smokers and their families and can even impact a national economy. The tobacco industry raises many issues throughout advertising and trading, which are not illegal but have ethical implications. Most importantly, the death caused by long–term smoking may disintegrate a whole happy family.

We need to start taking action to reduce the number of cases of health problems caused by smoking. Health education about cigarettes should really be an mandatory and important course in schools for young people. For every more student who receives health education, there will be a chance that one less person will smoke in the future. And for every less person who smokes, there is a high chance that a family's financial burden will be reduced, and one less person will die due to smoking. As a member of the global village, considering the way of action to reduce the smoking rate in our community is a very important current status of issue. Let's take action for the sake of those we love!

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2nd Place Winner: Brandi Holmes, "Sinophobia in the US"

For Professor Rosalyn Eves

Being one of the fastest growing population groups in the U.S, the presence of Chinese Americans continues to increase and their impact within the country is substantial. However, despite the significant number of them residing in the U.S, Chinese Americans still to this day continue to endure inequality and systematic marginalization. This type of negative bias is what's defined as Sinophobia - the intense disliking towards China and anything or anyone from there. Knowing about this situation, this then raises concerns about why there's so much intense hate towards this ethnic group, and how the U.S needs to approach these issues with great urgency.

History of this discrimination can be dated primarily back to the Chinese Exclusion Act of 1882 - An event which marked the negative stereotypes towards people of Chinese descent and one of the first federal policies to prohibit immigration in the U.S. During the mid-19th century, Chinese men came into the U.S as laborious migrants doing work in the mines. At the beginning of their arrival within the country, their service was greatly valued and respected which created The Burlingame Treaty of 1868 - An international agreement between the U.S and China that provided free immigration for Chinese immigrants as well as granting them protection in exchange for American trading rights in China. This treaty established a friendly relationship between the two countries, and the number of Chinese immigrants residing in the U.S grew significantly afterwards. However, approaching the late 19th century, many of the U.S citizens grew threatened by the Chinese immigrant's self-sufficiency and that they took up work for low wages, and started disapproving the nature of the migrants by calling them "race of cheap working slaves." After the turn in attitudes towards the Chinese immigrants, attacks and slander

surged and violent anti-Chinese strikes broke out. Thus, by 1882, the Chinese Exclusion Act was made which was a 10-year ban on all Chinese migration within the U.S. As a response towards the ban, in 1874 a group of Chinese community leaders wrote to the city council of San Francisco a message which was published as part of a pamphlet: "We wish now also to ask the American people to remember that the Chinese in this country have been for the most part peaceful and industrious… In view of all these facts we are constrained to ask why this bitter hostility against the few thousands of Chinese in America! Why these severe and barbarous enactments, discriminating against us, in favor of other nationalities" (The Chinese Question, 3). As this event is the significant turning point in attitudes aimed at ethnic Chinese people, the words from the Chinese community leaders in 1874 can still be akin to the citizens living in the U.S who are Chinese American, in which racism is still prevalent in today's society as it was two centuries ago.

Although in the modern U.S there is no extreme ban towards Chinese people coming into the country, there is heavy debate on banning Chinese owned websites such as TikTok, Shein, and Temu, which reflects the Chinese Exclusion Act by denying a heavy Chinese presence in the U.S. By refusing associations with China, the U.S has created a bad image and poor representation for people who are ethnically Chinese that're living in either of the two countries. Through this, other Asians living in America are also seen grouped in with Chinese descent as well which not only contributes to more racism inflicted upon Chinese Americans, but also harmful stereotypes pressed on all Asian-Americans. What this all shows is that Sinophobia in the U.S not only harms individuals of Chinese descent, but also contributes to a culture of racism and discrimination towards all Asian Americans. Though the U.S has grown past its exclusion act from 1882, the country is still behind on promoting fairness and equality for its Asian

civilians. This illustrates the need for the U.S to implement more methods for decreasing this prejudice by contributing approaches to fight against this racialism.

With the U.S being a melting pot of culture and diversity, having many people sharing the ethnicity of the most populated country in the world being located here is no surprise. Yet, the thing that is surprising is how much racism is imposed onto these groups of civilians with little to no purpose towards the prejudice. Being a Chinese American comes with a great challenge of facing discrimination and inequality that pertains to everyday life experiences. As the political relations shown between the U.S and China fail to reveal any positive outcomes, it creates a bad image for Chinese Americans as they're stuck in between two nationalities that just so happen to be antagonists towards each other. Having this identity of possessing the culture and appearance of people from a country deemed unfavorable by the U.S government, Chinese Americans are susceptible to an overwhelming amount of unnecessary hate and stereotypical preconceptions made by their American peers.

In a study done by Committee of 100, researchers conducted a survey handed out to people who identified with Chinese heritage living in the U.S, that included 77 questions involving multiple demographics. Receiving the data from 6,481 respondents across different parts of America, there was an alarming amount of information expressing the racism these participants have endured within the 12 months prior to the study. One of the key findings from this study is that "Nearly three out of four Chinese Americans experienced racial discrimination in the past 12 months..., nearly half reporting being treated with less respect than other people, and over a quarter experiencing bias or hate incidents" (Gao et al. 5). Knowing that from just a small data collection made up of Chinese Americans which displays how racism is prevalent within over 70% of their daily lives, it shows beyond doubt that this racism is being unnoticed

and continuously growing because of ignorance. As these percentages show that racism is highly prevalent for Chinese Americans, it proves how America is lacking regards for this group of people and how the country needs to spread awareness to reduce the number of racist acts inflicted towards them.

Due to the negligence for the racism dealt towards Chinese Americans, this unresponsiveness not only continues to harm this group, but also all Asians residing in America. Looking back to 2020 where the Coronavirus became increasingly rampant and posed a danger to civilians from all over the world, the term "Chinese Virus" soon replaced the true terminology for the disease, and fueled even more hate onto the already discriminated against group as well as distorted viewpoints towards anyone who appeared as Asian.

In addition to the study done by Committe100 where they look specifically into Chinese Americans, Russel Jeung, professor of Asian American Studies at San Francisco State University, conducted research that investigated xenophobia on Asian-Americans during the beginning months of 2020. Jeung's research results show a serious issue concerning racism as the findings "revealed more than 1,000 cases [of racism] between Jan. 28 and Feb. 24, a period during which coronavirus cases were first reported in the United States" (Par. 6). COVID-19 is a life-threatening virus that has taken the lives of many people around the world. When something so harmful is affecting everyone and their loved-one's lives, it's only natural to have anger and irrationality take over logical thinking and wanting to put the blame on someone. However, these actions only promote more harm and malevolence, creating broken ties and relations with uninvolved people without fault. As John C. Yang, president and executive director of the civil rights group Asian Americans Advancing Justice (AAAJ) states: "The deliberate use of terms like "Chinese virus" has definitely fanned the flames of racism toward Asian Americans in this

country" (Par. 8). Keeping this resentful attitude in placing blame on the blameless, Asian-Americans are at risk of racism by being perceived for their appearance of being potentially Chinese, while Chinese Americans get the unjust aversion not only from their peers, but also other Asian-Americans for being grouped in with them, which ultimately leads to destructive relationships between everyone.

By examining the extent of Sinophobia present within the U.S and how it affects not only Chinese Americans, but also all Asian-Americans, it is clear to see that there needs to be a change in controlling racism in the country. In order to fight against racism, there first needs to come the notice of it happening - which is not as established as it needs to be. To do this, the U.S needs to promote awareness of Sinophobia in many places such as education facilities and social and political media. Afterwards, there also needs to be more responsiveness from the government and the people towards hate crimes and discrimination. To assess the seriousness within the situations, creating more regulations and calls to action on racism towards Asian-Americans will help advocate safety and wellness for those communities. Overall, by incorporating both raised awareness and stricter monitoring towards hateful prejudice, the fight for equality for both Chinese Americans and Asian-Americans can stand to see another day.

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Expressive- English 1010

1st Place Winner: Brandi Holmes, "The Color Pink"

For Professor Rosalyn Eves

"I hate the color pink." As the little girl with the seemingly plain clothes expressed her opinion towards the popular color, it couldn't be helped that something fairly controversial would spark some reactions from the other elementary kids hanging around the play area. However, to my surprise, the reactions were in a unison of awe and reverence towards the outspoken girl, who proclaimed her distaste for something so harmless as a vibrant hue.

"Yeah, pink is too girly! I hate wearing skirts and dresses too!" another mundanely-dressed girl added, gaining even more attention and praise from the playground peers, who were all now circling around, creating a group of anti-pink activists.

As the crowd grew larger and my presence grew weaker, my younger self couldn't help but feel some sort of shame. Listening to this conversation, wearing my pink frilly Hello Kitty dress, pastel-colored bows in my hair, and sparkly ribboned shoes, I knew that I was the exact image of a person that these young girls my age did not want to become. Worst of all, I felt as if there was a wall in front of me dividing myself from what it meant to be the better version of a girl—the type of girl who was stronger, bolder, braver, and—most importantly—incredibly cool. I was the type of girl that portrayed an impression that others were racing to grow past: a girly-girl. My whole identity at that stage of my life was built around the girly stereotypes that many mock and ridicule, and, because of this, I grew to hate the image I represented.

As I grew older, my closet began to lose much of its distinguishing features that would've decorated my appearance. I hardly had any shoes besides the essentials for season changes; no skirts or dresses were to be seen. Every shirt was a basic tee or sweater with minimal patterns to

them, and I completely abandoned any accessories in relation to hair or jewelry. My wardrobe gradually became stripped of bright colors, and shades of neutral-toned clothing became my staple. I never let my hair grow too long in length, and, usually, I would cut it short once it started getting to the point where I could tie it up into a bun. I participated in activities that would be deemed as less prissy, such as playing in dirty environments, interacting with insects, and doing more physical sports. By contributing to the facade that I was living in, I earned the approval of my peers as well as affirmation within myself. During this phase of my life, it was the first time I had endured a perspective of a life I hadn't experienced—and yet, I hated every minute of it.

Nearing the end of my sophomore year of high school, it would mark five years since the change in self. Through what seemed like an endless void of desolation during this time, boredom rotted my mind, and dissatisfaction lingered toward many different aspects of my life. At this point, after so long of recreating an identity that wasn't mine, I wasn't even sure of who I truly was anymore and what I could genuinely claim as my passions and interests. Tomorrow became a rinse and repeat of the current day, and yesterday was no different than its forerunner. Days just as monotonous and unchanging as my character passed by, and my outlook in life was palpably colorless. The type of uniformity that I fell into was desolate and vacant but, at the same time, a kind of comfort that I couldn't escape.

Although my appearance was conventional, I lacked that structure in actions. On one particular day, I noticed that my room was getting a bit more cluttered than usual, and I promptly took action to tidy up the space. Working efficiently through what needed to be picked up off my floor, I got to the part of my closet next. While shifting through piles of clothes and organizing

what needed to go in storage or be donated, I stumbled across an old childhood dress of mine along with many older pieces of clothing from those years as well.

When I laid my eyes upon this dress, deep waves of nostalgia rushed over me like an overbearing pocket of water that impedes a surfer on the ocean surface. I found myself examining the garment profoundly, forgetting the room cleaning I was in the process of doing. This white dress was adorned with pastel blue ribbons circling the waist, frills lining the vertical seams, and various shades of blue flowers speckled all over. With one glance, anyone would discern that it was a dress fit for a girly-girl. At this moment, I remember laughing at how something so old survived this long in my closet.

Taking away a bit of my weariness from cleaning, I walked over to my full-length mirror and held up the dress close to my body to study how it would look on my teenage figure. I was already aware that my growth spurt had finished by this point in time, so knowing how my proportions were as a kid compared to now didn't have much of a difference. Procrastinating the rest of my cleaning as well as fooling around, I went to go try on the dress. Slipping into this dress did not prove as challenging as one would think, since my body didn't significantly change within the time since I last wore it. Though the fabric was a bit tight around the bust, the waistline didn't provide any compression to me, and the dress was perfectly mid-length. Overall, the dress actually fit.

Tying the ribbon behind my waist, I took a step backwards to fully examine myself in the mirror with this familiar style of clothing. As I looked at myself, I immediately felt a rush of embarrassment and disgust. I saw in myself the child I used to be and the child no one wanted to bear resemblance to and knew that the teenager I am now is not remotely the same person at all. Yet, despite the animosity I felt towards my past self, I longed to be the person I once was.

I went to bed that night with a clean room but a disorganized headspace. In the deepest part of my mind, I knew I really wanted to wear the dress.

The next day came when I had to go to school, and it went by as any usual day would. Though, there was a change within this morning that was different when it came to choosing my outfit for the day. Peering into my closet that was tidied up the night before, I saw that the dress was still hanging there from where I left it. I began thinking to myself: “Can I really wear the dress?” I thought about the amount of unwanted attention going through with this decision would bring me, and how much I’ll be made fun of for it. Though this dress wasn’t too childish looking, it was still very girly. If being looked down upon for wearing a girly dress as a child was intimidating, wearing something like this as a teenager was the ultimate fear-inducer. However, it could have been due to boredom or just plain lack of thorough thought; whatever came over my thought-process that day ignored these anxiety-fueled ideas, and I began pulling the dress off of its hanger. After putting the dress on, I also decided to tie my shoulder-length hair back into a small ponytail and add on a plain beige cardigan to go with the overall outfit.

Looking in the mirror, I felt as stupid as I looked. I felt so many negative emotions towards myself at this moment, and it was all determined by a piece of clothing I could just take off—so why didn’t I? My brain began to create different kinds of scenarios of what people would say to me, all with the same negative effect such as: “What is she wearing?”; “She’s trying so hard in school. I could never wear that!”; “She looks absolutely ridiculous.” Overwhelmed with the burdens my own mind contributed to my self-esteem, I texted one of my close friends at the time for their opinion.

Sending a picture of the outfit and asking them for their thoughts, a few minutes passed by with no response, making me worry whether they would see my message or not. Knowing I

only had a few minutes before I needed to head out to catch my bus, I began growing anxious that this whole get-up was a waste of time and effort. Eagerly checking for any notifications from my phone, the time to leave was getting too close, and, eventually, I just decided it wasn't worth it to go out looking like this. As I quickly headed to my bedroom, I was just about to hurry and change when my friend texted back in all caps: "YOU LOOK SO PRETTY." Of course, we're both teenagers, so that's the most censored version of their comment, but with these few words coming from just one person alone, I felt a surge of confidence I never had before. Running to my mirror for one last check, I readjusted my ponytail and cardigan and headed out the door for school.

Throughout the entire school day, I received positive comments from my friends while quick glances from multiple different people in the hallways. No matter what reaction I was met with though, one thing I remember specifically about this day was how free I felt—as if the chains from the personality I once had were released. I wasn't the self I previously was as a kid, since time has made me mature since then, but I also didn't feel like the person that I was living up to become. I was a new version of myself that felt secure. After this day, I began doing the things I used to enjoy little by little such as styling my hair, painting my nails, accessorizing my outfits, etc. I also started to grow my hair out, and a year later, I even went to get my ears repierced.

By the time my junior year of high school came, I already was a whole different person. I wore skirts and dresses to school most days and put lots of effort into my outfits. I started doing makeup and would openly talk about things such as beauty and fashion towards my friends regardless of if they were a boy or girl, and I never forced myself to take part in activities I didn't want to do to impress others. Finding what truly made me happy sparked life within myself.

Experiencing the passage of time between those two phases of my life made me explore and appreciate things that I actually like doing and genuine passions that I have. In today's generation, most people would categorize me as feminine, which makes me wonder, why was it so bad to be considered feminine as opposed to masculine? Why was being a girly-girl less "cool" than being a tomboy? Though my early teenage years were spent with a loss of self, I am appreciative of that time. Not only did it lead me to learn the importance of overcoming my fears from societal pressures, but it also helped me become the person I am now: someone who loves frills and lace, makeup and shopping, skincare and beauty, outfit aesthetics and styling, and—most importantly—the color pink.

Argumentative- English 2010

1st Place Winner: David Mefford, "Buzzing Decline: Challenges Facing Bee Populations and Conservation

For Professor Natalie Johansen

Buzzing Decline: Challenges Facing Bee Populations and Conservation

In a world of abundance—lush fields, diverse landscapes, and bountiful harvests—it seems inconceivable that one of nature's most industrious creatures, the bee, is struggling to survive. In the United States bee populations have been rapidly declining for over 30 years ("Bee colonies: Worldwide population on the rise."). Despite increasing legislation and conservation efforts, we have yet to stop the decline in bee populations. Bees represent an important group of pollinators that the ecosystem and modern agriculture depend upon. Without bees, our lives would be very different. Three major factors indicate a bee or bee colony's ability to thrive: reproduction, resources, and health. Interference with any of these three things will likely result in a decrease in bee productivity and in the worst cases the complete collapse of the colony. These factors are in a delicate balance with each other and many unpredictable variables. Maintaining this balance is paramount to the success of bees. Climate change, pollution, poor farming practices, parasites, and disease are the major contributing factors that seek to disrupt this balance. We can make more effective decisions on legislation and conservation by understanding these factors that affect bees.

Impact of Climate Change on Bees and Their Habitats

To understand how climate change affects bees' access to resources it is important to see how bees change with seasonal change. Starting in the summer we see the stereotypical bee we all know and love, buzzing from flower to flower collecting pollen, and bringing back honey to store in the hive for winter. As winter approaches the queen's reproduction declines and a new

generation of plumper worker bees has grown just in time for winter when reproduction stops. As spring approaches and the flowers begin to bloom the queen rapidly restarts her reproductive cycle and swarms of bees are produced. The bees then continue to forage all summer until the cycle repeats (Grozinger and Anton 1). However, disrupting this cycle could spell disaster for the colony.

The availability of resources is one such factor that if phenologies aren't aligned correctly could be detrimental to the colonies' success. This factor is heavily influenced by climate change, a direct example of how climate change can affect bees' accessibility to resources is droughts. According to Blasi et al. when in drought conditions, the number of flowers is reduced affecting pollinators' survival (1). However, this is not the only way climate change can affect bees' access to resources. Another important way climate change affects bees' access to resources is through disrupting plant flowering cycles. In the bees' environment, it's important to have a balance of early flowering plants and late flowering plants. Maintaining this balance allows bees to have the right resources all season long. Changing the blooming period of either of these groups can be detrimental to the colony's ability to survive. The flowering cycle of plants is incredibly sensitive to temperature. Unfortunately, due to climate change, the variability of temperature increases, which has a massive impact on bees' survivability (Blasi et al. 10). As spring comes around and bee populations begin to boom it is important that they have the necessary resources to sustain such a massive spike in population. As spring turns to summer, having later-blooming flowers is vital to nourish the colonies and prepare them for winter. As global warming increases temperatures the flowering periods come sooner resulting in less pollination for the flowers and less food for the bees. This is very important as not having enough resources to take full advantage of the later flowering plants can lead to a less prepared winter, decreasing the colony's

chance of winter survival. This can also lead to future declines in resources for the bees, as a decrease in pollination would directly result in less reproduction of plants which has the potential trend towards total ecosystem collapse. Thus, if left unchecked, climate change poses a significant threat to ecosystems and the essential resources bees depend on.

Another important factor that affects the species and colonies' long-term survival is the production of new queens. Blasi et al. found that “[t]he production of queens was higher in landscapes where there was a high enough proportion of late-flowering crops. Where the ratio of early-flowering crops to late-flowering crops was too high, the production of queens decreased” (10). This is important as queens serve not only to maintain the survival and growth of a colony but also to expand and create new colonies. Disrupting this crucial pipeline puts the bees at risk and all plants that depend on bees for pollination and reproduction. By interfering with the resources available to bees, climate change indirectly impairs the bee colonies' ability to reproduce and grow.

Not only does climate change indirectly affect bees through interference with their resources climate change also directly affects bees' health and susceptibility to parasites and disease. For example, Chen et al. explain that “[b]ees tend to visit flowers more frequently and forage more actively in warm and favorable weather rather than in cold harsh weather” (29). As global temperatures rise due to climate change this increase in temperature may sound ideal for bees, however, climate change is more complicated than simply rising temperatures. For example, one facet of climate change can be a stark drop in temperature, decreasing bee productivity and leading to potential colony collapse. Large temperature changes either way can be very problematic for bees as we have seen, a large increase in temperature results in fewer resources but a decrease lowers productivity. Bees’ health can also be directly affected by

climate change through parasites. Chen et al. explain that winter is an important time of year for bees to manage parasites. During the winter colonies have no babies for the parasites to feed on, this is problematic for the parasites as the adult workers can aptly defend themselves against the parasites (30). Eradication of mites during the winter is an important strategy that allows bee populations to boom in the spring. As global warming and climate change are on the rise they threaten to shorten winters, making the odds of effectively managing these parasites less likely and causing a decrease in overall bee colony health.

A bee colony and its ecosystem have an important mutualistic connection resulting in simultaneous growth. As a result of climate change both colonies and ecosystems are at risk. Whether climate change disrupts the flow of resources to the colony resulting in less pollination and less reproduction, or even disturbing the colony's ability to grow healthy workers by increasing the incidence of parasitism, we must be aware of our place in climate change and how it affects the world's ecosystems. A better understanding of the mechanisms by which climate change is harmful will allow us to have a greater appreciation for the delicate balance of nature.

Human-Induced Factors in Bee Decline

Although it is argued that climate change is a human-induced phenomenon, this section aims to outline some of the direct human-induced factors that harm bee populations. One major contributing human-induced factor is air pollution, which is a major cause of global warming and climate change. Researchers at Penn State found that air pollution, specifically ozone, greatly affects pollinators' ability to detect plants. This results in the signaling molecules emitted by plants being broken down by ozone in the air (Jackson). To those unfamiliar with atmospheric chemistry, ozone in the air may sound normal, as the hole in the ozone layer and insufficient ozone have been a major concern to many for a long time. However, the natural and important

ozone is found in the upper layers of the atmosphere and is not usually formed in the lower atmosphere. The combustion engine is the largest contributor to producing tropospheric (Lower atmosphere) ozone. During the combustion cycle of an engine occasionally nitrogen oxides are released. These are unwanted side products of combustion and they are formed during a process called incomplete combustion. These nitrogen oxides react with other atmospheric molecules to form tropospheric ozone. Ozone is an incredibly reactive molecule, which explains how it can break down these plant signaling molecules. However, ozone doesn't only affect bees, nitrogen oxides, and ozone are what lead to the blanket of smog that carpets over cities. This is not only bad for humans to breathe but also increases the surrounding temperature and decreases plant growth, which as discussed previously are both potentially harmful to bees. However, emissions of these nitrogen oxides are not completely unregulated, most cars should have what's called a catalytic converter which breaks down the harmful nitrogen oxide gasses (Baird and Cann 76). However, it is not uncommon for people to have damaged catalytic converters or remove them altogether. Most air pollution cars release is from a small minority of drivers whose catalytic converters aren't properly functioning. With this in mind, ensuring your car is functioning properly is important for the health of bees and the ecosystem.

Another example of a human-induced factor in the decline of bees is the overuse and abuse of pesticides. A common problem with the modern use of pesticides is the over-generalized nature of what they protect from. Farmers may be trying to protect their crops against one specific pest and as a result, kill way more than they bargained for, and in extreme cases they can even kill people. This is why it's important to be responsible when dealing with pesticides. Like climate change pesticides can directly affect a bee colony's access to resources,

ability to reproduce and grow, and overall health. Understanding how pesticides interfere with bees will illuminate the importance of responsible pesticide use.

A major mechanism by which pesticides are directly destructive to bee colonies is by disrupting reproduction. Scientists have consistently shown that pesticide exposure significantly reduces reproduction rates (Suryanarayanan and Kleinman 110; Kline et al. 16; Stulingross and Williams 4). As previously stated, decreasing reproduction rates can be detrimental to the long-term success of the colony and species. Moreover, pesticides don't need to be directly applied to the colony to have these negative effects. In a study conducted by Stulingross and Williams, they found that pesticide exposure can have prolonged effects over years. A short exposure period decreased reproduction rates over 2 years (4). It is crucial to acknowledge that even short-term exposure to pesticides has lasting harmful repercussions to bee colonies. When paired with climate change and air pollution these effects leave little opportunity for the average bee colony to thrive.

Similar to climate change pesticides can affect bee behavior and health. According to Stullingross and Williams, pesticide exposure reduces bee's ability to pollinate crops effectively (1). As previously explained this can be devastating for the prosperity of bee colonies and the ecosystem. This is also reiterated by Klein et al. when they explain that, ”[a]fter exposure to pesticides, bees can experience several negative effects to their health, foraging ability, and fecundity, depending on the type of pesticide and the concentration (16).” Similarly, Stullingross and Williams also stated that exposure to pesticides at any point in a bee's lifetime increases susceptibility to parasites (1). That all goes to say that pesticides are a major contributor to the declining bee population. Although pesticides are a cheap and versatile tool, it's important to

consider the negative effects on bees and the ecosystem when using pesticides. By being more aware of these choices we can preserve the long-term integrity of the ecosystem.

Economic Implications of Bee Decline

Although to some it may be obvious the importance that bees hold, whether it be the role they play in the ecosystem or the part they play in farming, it is impossible to ignore the importance bees have in the global economy. According to Chen et al., 80% of all crops benefit from bee pollination, globally this industry is worth 215 billion dollars (2). Although not immediately apparent, the significance of bees in the global economy is undeniable, however, their economic impact extends to rural economies as well. Although beekeeping is often viewed as a niche hobby or educational display at schools, it is an important part of rural economies and a valuable asset to the ecosystem. ("Why bees are essential to people and planet."). In rural economies keeping bees is a valuable source of income. This is because bees produce many useful products, the most obvious of which is honey. A less obvious product of beekeeping is beeswax which is useful in many industries like cosmetics and candles. Beekeepers are invaluable parts of the community; they have also been important contributors to our scientific understanding of bees. A team of scientists having trouble with their bee colonies consulted a local beekeeper who diagnosed the problem and provided insight into alterations in the colonies' feeding habits only with a look, surprising the scientists (Suryanarayanan 15-16). This illustrates the importance of beekeeping, as an enjoyable hobby and an essential practice in understanding and preserving bee health.

The reach of beekeeping is farther than you may initially think; in the agricultural economy beekeeping is crucial. When you think of farming you typically don't think of bees, however, bees have always been an important part of farming in fact, according to Palmer,

beekeeping predates farming, being at least 12,000 years old (Palmer). Recognizing the vast history of beekeeping underscores its importance to the farming industry. The beekeeping and farming industries still work closely together. A common, lesser-known example, is farmers renting out bee colonies from beekeepers to pollinate their crops. However, this mutualistic relationship is at risk. In a survey conducted by the USDA, 42% of bee colonies rented out by farmers reported a decline in bee population. More troublesome though is that 66% of these beekeepers reported unrecoverable losses (Palmer). This means that beekeeping is in trouble, a large portion of the bee colonies responsible for pollinating our crops are heading towards colony collapse. This record-setting decline in the bee population shows the urgency of change needed.

However, some may argue that more restrictive legislation would inflate the price of agricultural and bee-related products due to a likely increase in farming production costs. Although this statement is true, the same would also be true long-term. According to the United Nations Environment Programme, one-third of the world's food production relies on bees ("Why bees are essential to people and planet."). If bees were removed from the equation these crops would likely not go extinct. However, the yields would go down and as a result, the prices would go up. Lots of common foods are affected like coffee, almonds, apples, avocados, onions, and many more (Palmer). To many, these are household staples, but without giving bees the proper protection they would quickly be turned into expensive luxuries to eat. Pollination is a job that bees do for free, the only price we need to pay in return for their services is to be aware of the things that are harming bees.

Conservation efforts and Legislative actions

For bees and many other pollinators time is running short. Advocating for conservation and legislative action is the only way large enough scale change can happen. However, plans for

change have been in the works, for example the EU (European Union) has plans to reduce pesticide use by two-thirds by 2030(“Why bees are essential to people and planet.”). Although the EU has the right idea with increasing pressures on farmers, these goals may have to be pushed sooner considering recent developments with the declining populations.

Large-scale change is often slow, and this is not due to a lack of effort. Making changes in legislation is a difficult task, especially with climate change. Climate change is a heavily debated topic, often hiding the real science at its core with politics and bureaucracy. As Maxine Sugarman argues in his judicial review of climate sciences, most judges aren’t adequately equipped to make legislative decisions regarding climate change and underlying science (1). Without an intimate knowledge of chemical and biological mechanisms, the science can easily be misinterpreted. However, it is not the fault of the uninitiated for the misinterpretation of science. Especially in the fields of chemistry and biology, without years of experience, reading a scientific article is often a daunting task. This problem can be boiled down to one main issue in the scientific community, overcomplicating the science. Dalmeet Singh Chawla, a journalist for the magazine Nature Index writes:

> Science is becoming more difficult to understand due to the sheer number of acronyms, long sentences, and impenetrable jargon in academic writing. Not only does such overcomplicated language alienate non-scientists and the media, it can also make life difficult for junior researchers and those transitioning to new fields.

By pointing this out, Chawla shed light on the difficult problem of science communication. Among many scientists, the overuse of acronyms and jargon often feels like the most obvious way of explaining their science, and among other experts, it can be. However, not all of us are experts. By taking advantage of the difficulty of communication in science, major agrochemical

suppliers have shifted legislation in their favor. According to Suryanarayanan and Kleinmann, Bayer, a large agrochemical supplier, has been creating confusion about the effects of their products to influence legislation around pesticides (73). This kind of confusion leads to uninformed public perception and weaker legislation. Having a science-literate public leads to stronger conservation efforts and better legislation. Reducing jargon and overcomplication of science will allow more people to understand their work creating a larger impact on making a more science literate world and the most accurate legislation.

The plight of the humble bee, once overlooked amidst the abundance of nature, now stands as a stark reminder of our interconnectedness with the environment. By understanding climate change, human-induced factors, and the economic implications of bee decline, we have seen the delicate balance upon which bee populations and ecosystems rely. Climate change, with its unpredictable temperature and precipitation patterns, poses a significant threat to bee populations, disrupting bees' life cycles and compromising their health and susceptibility to parasites. As we witness the potential for ecosystem collapse and diminished pollination, the urgency for action becomes clear. Human-induced factors, such as air pollution and the indiscriminate use of pesticides, further add to the challenges facing bees. Though often met with obstacles, conservation efforts and legislative actions hold the promise of meaningful change. Initiatives to reduce pesticide use, as seen in the plans of the European Union, offer a path forward. However, the road to effective legislation is fraught with complexities, from misinterpreting scientific findings to the challenge of scientific communication. Bridging the gap between scientific understanding and public awareness is crucial. Simplifying the language of science, reducing jargon, and fostering a culture of informed discourse are vital steps toward creating effective legislation and conservation efforts. Ultimately, the fate of bees is inseparable

from our own. As we strive to protect these vital pollinators, we protect the ecosystems we depend on. The time to act is now, for the bees and the health of our planet. By recognizing the intricate balance of nature and our role within it, we pave the way for a future where bees can thrive once more.

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2nd Place Winner: Ellie Tatum, "How Food and Nutrition Affect Migraines"

For Professor Charla Strosser

Migraines are a neurological phenomenon that alter the way the brain processes. They stem from the brain processing neural signals wrong due to the effects of the sensory networks in the brain. Migraines usually last anywhere from four to seventy-two hours and can cause a range of symptoms (Arab). While they can begin in childhood, most migraine disorders begin during or shortly after puberty. Migraines affect many people in the population regularly. Medicine has come very far in helping to solve this problem. But, recently more and more doctors are turning towards nutrition to solve or help alleviate many different health issues, migraines being one of them. Food and nutrition affect how the body feels and functions constantly, and are being found to play a bigger role in many more functions than previously thought. Food and nutrients have a big role in migraine severity, length, and frequency.

Food itself is made up of many different substances, some nutrients and some non-nutrients. Nutrients are classified as vitamins, minerals, proteins, carbohydrates, and fats. These are what make up the bulk of the food items consumed. Any other substance is defined as a non-nutrient. Examples of non-nutrients are fiber, phytochemicals, alcohol, and pro/prebiotics. These are more of the behind-the-scenes benefits or harmers in food. Triggers or relievers of migraines are not necessarily the main cause behind the pain or lack of, but they can cause the pain to appear or get worse at a quicker or slower rate than without them.

Migraines are thought to be the most prevalent neurological syndrome, and one of the most common reasons why people call out of work or school. There are two main types of migraines; those with aura, and those without aura. Aura is the feeling some people get before

the onset of a migraine. It usually involves neurological symptoms, and blurring or disruption of vision. Migraines with aura are usually accompanied by nausea, photophobia, and phonophobia. Photophobia is the sensitivity to light, and phonophobia is the sensitivity to sounds, especially loud sounds. The data seems to show that it does not matter what type of migraine (with or without aura) one suffers with in regards to treatments, or even the triggers that start the migraines.

The triggers or causes behind migraines are different for every person. Looking at many studies done on triggers show there are many common triggers or reducers of migraine headaches. Some of the common triggers are smoking, alcohol consumption, the typical 'western diet', processed meats, practicing fasting, chocolate, cheese, and milk. Although these are not the same for every migraine sufferer, these are very common food or food consumption triggers for those suffering with migraines. Some of the common migraine reducers are a diet rich in whole grains, fruits, veggies, and a diet that chooses foods that are low on the glycemic index. The glycemic index is a way of measuring how long it takes for carbohydrates to break down in the body. Carbohydrates that are high on the glycemic index (like simple sugars) break down very fast and cause a spike in blood sugar. On the contrary, carbohydrates that are low on the glycemic index (like brown rice) break down slowly and do not cause that dramatic spike. Pergolizzi, a pain management physician specializing in migraine/head pain, explained that the best way to find out a person's specific triggers is through an elimination diet. An elimination diet is when food is removed and slowly re-introduced until the cause of the issue is found. Elimination diets are used to find a lot of food-based issues that people encounter such as food allergies or adverse reactions. Using these methods have shown to aid in people finding out what is causing their migraine distress.

Although they differ greatly between migraine sufferers, some foods commonly trigger these headaches, some being chocolate, hard cheese, wine, citrus, and caffeine. The mechanism behind some of these triggers is unknown or is so variable in everyone that it is hard to define, but there are some common substances in each. A big commonality is a substance called flavonoids. These are found in foods like red wine, citrus, chocolate, and aged cheese. Flavonoids do have benefits to the body when they are consumed in smaller amounts. However, flavonoids in large amounts or when in contact with free copper or free iron are actually shown to be pro-oxidants. Free iron and free copper by themselve are also known to be pro-oxidants. Arab, a holder of a master's and Ph.D in Nutritional Science explained that, "Flavonoids function as pro-oxidants when they are in high concentrations or oxidated by intracellular enzymes such as myeloperoxidase or when they come in contact with iron and copper." It is known that free iron is a pro-oxidant, but as the author also points out, it can create more pro-oxidants if it comes in contact with flavonoids. Too many pro-oxidants, also called free radicals, as well as an absence of antioxidants, cause oxidative stress. Oxidative stress is when potentially reactive oxygen and nitrogen molecules can potentially cause destruction in the body. High levels of oxidative stress are usually found in migraine sufferers whether that be because of the individual's diet or not (Arab). A big component to destruction and inflammation in the body is oxidative stress. Many other food-based and non-food-based factors have an impact on oxidative stress in the body. Having a magnesium deficiency is often linked to having more free radicals in the body and an increase in oxidative stress. Living at a higher elevation leads to more oxidative stress. Oxidative stress is created from breathing, walking and eating. This stress is something everyone has, it is common to see more of it in migraine sufferers. It can cause lots of damage throughout the body, one being migraine headaches. Abad Arman states, "Furthermore,

migraine attack has been proposed as a homeostatic, neuroprotective response to brain OS." This is saying that a migraine might be a protective mechanism against oxidative stress. It is known that most people, especially Americans, are not on par with their intake of antioxidants. The DASH (dietary approach to stop hypertension) diet was a proposed inexpensive way to cut back on oxidative stress in the body, therefore cutting out the frequency of migraine headaches. This diet is one that is high in antioxidants which 'eat' free radicals. A study done on this diet shows that it significantly increases the amount of antioxidants in the body, thereby decreasing the overall oxidative stress present.

Red wine is known to be one of the worst triggers for headaches, even having their own name 'red wine headaches'. Pergolizzi wrote on how red wine is one of the most reported migraine triggers, only beaten out by stress. These can occur in both those who do and do not experience migraines. There are many reasons why red wine causes so many issues with migraines, and it is believed to be a combination of those reasons that contributes to the overall effect. Non-nutrients like sulfites, tyramine, phenols, and tyramine are all linked to migraines and are all found in red wine. The way wine interacts with the brain and neurotransmitters is also thought to be a cause behind it being a major trigger. The major neurotransmitter being affected is dopamine. Dopamine has been linked to many of the symptoms of migraines caused by red wine like yawning, nausea, fatigue, difficulty concentrating, and a stiff neck (Pergolizzi). It has been shown that those with migraines have more dopamine in their system potentially causing a number of these symptoms. Red wine, and alcohol in general, have an effect on how fast dopamine can be deactivated in the brain. When this speed is slowed and there is more dopamine in the system, that is what is thought to cause many of the symptoms of a 'red wine headache'. Although labeled differently, red wine headaches are thought to be a type of migraine.

Dieting is what most people jump to when asked to change an aspect of their nutrition. Most of the time, however, just small changes are being asked to help improve setian deficiencies or overconsumption. The term ‘diet’ can be very scary and intimidating for anyone, especially when being told by a doctor. The nutrition world is trying to move away from that word and use different terms such as nutrition or eating plans. With that being said, some diets can improve migraine symptoms, although it is more important to focus on certain aspects of the diet instead of the whole set of rules that follow most diets.

As mentioned before, a newer diet that has been appearing to help many different health problems is the DASH diet. This diet was created to help people decrease abnormally or dangerously high blood pressure. It is a diet plan that follows ‘healthy’ eating habits such as consuming whole grains that are low on the glycemic index, low-fat dairy, fruits, veggies, fish, poultry, and getting plenty of dietary fiber. This diet also limits sodium and added sugar intake. The dash diet does not have specific numbers or restrictions, it just encourages people to eat in a healthful way. As found in a randomized controlled study, this diet significantly decreases the amount of oxidative stress made in the body compared to that made in a western diet. The overall drop in oxidative stress is thought to be one of the many factors that cause this diet to aid in migraine relief. Also noted in the three-month study, those on the DASH diet had a significant increase in vitamin C, magnesium, potassium, and fiber (Arab). All of these factors are found to help decrease migraine frequency, severity, and duration. Arab Arman, the conductor of this study and a holder of a Ph.D. in nutrition stated:

> “The properties of diet do not stem from the addition or elimination of specific nutrients; instead, each food contains many nutrients that let for an antagonistic or synergistic action when consumed in a certain composition. Understanding the

> heterogeneous characteristics of dietary intake and considering the dietary pattern instead of a single nutrient or food group, is an important step towards improving our knowledge in terms of the association between migraine and diet."

This is saying that no certain food or food group is the cause of migraines. It is what individuals eat daily that really determines what their body does with those nutrients. Another study conducted by the Stanford Department of Neurology found that those who followed the DASH diet guidelines experienced a thirty percent decrease in severe headaches (Hindiyeh). The evidence and common sense of this diet do show that it significantly helps reduce migraine suffering.

One of the main focuses of the DASH diet is reducing the amount of sodium intake. Sodium is a nutrient that is very high in the western diet. It is needed to maintain nerve pulses, water/mineral balance, and to contract muscles. However, most Americans go above and beyond the daily recommended limit. The recommended intake is two-thousand three-hundred milligrams and the average American intake is three-thousand four-hundred milligrams. This excess sodium is linked directly to migraines, dehydration, inflammation, and many other negative effects on the body. Dehydration has been thought to be another trigger of migraines. Not having enough liquid in the diet physically causes the brain, and other parts of the body, to shrink in the skull (Turner). Inflammation is also part of migraine pain, so having excess inflammation in the body already leads to more severe migraine pain.

The Mediterranean diet has been proven to be one of the overall healthiest diets and lifestyles to follow. This eating style focuses on legumes, seafood, whole fruits and vegetables, whole grains, olive oil, and nuts while avoiding saturated fats, red meat, fried food, dairy, and poultry. The lifestyle aspect emphasizes exercise that feels good to your body and spending

family time together. A study done by Arab Abman looked at how this diet affects migraine severity, duration, and frequency over a nine-month time span. It was found that the Mediterranean diet does positively influence the frequency and duration, but there was no found correlation with severity. This is saying that although the headache attacks might have the same level of pain, they are not as long or not occurring as often as before.

Fasting and intermittent fasting are very popular dietary changes and can have very positive effects on the body. However, the practice does appear to lead to an increase in migraines. This is evident from a study that was conducted over the month of Ramadan. Ramadan is a month-long time of fasting, prayer, and reflection for the Muslim people. At this time they are not to eat or drink any substances. In this study, it was found many more migraines were reported than in any other month of the year. Many other surveys of migraine sufferers also report fasting as being one of the most prevalent triggers (Hindiyeh). In a survey asking many migraine sufferers their known triggers, forty percent of those surveyed reported missing meals as a trigger. Since there is no stated length needed for a ‘fast’, missing even one meal is considered fasting. Not having enough nutrients and then experiencing a dramatic increase can put the brain into a small state of shock. This shock is a disruption to the homeostasis of the brain, and is similar to eating carbohydrates that are high on the glycemic index. Although fasting has many health benefits, it does appear to be a common cause of migraines.

Although it can help majorly, nutrition can not fix all problems, and that fact is the same when it comes to migraine treatment. Treatment for migraines can come in many different forms. Medication and different types of therapies are among the most common. Although there are positive results from these treatments, it is very dependent on the individual person, or even the individual migraine.

Medicine is the most common way to combat migraines to date. A study looked at non-steroidal anti-inflammatory drugs as well as substances found in known migraine triggering food, in mice subjects. The use of drugs along with the harmful substances in food was shown to dramatically increase the migraines and behaviors associated with them (photophobia, shaking, body temperature, anxiety) along with decreasing the normal behaviors of mice (grooming, head movement, avoidance of humans).

Although medication is a known way to fight off this pain, there are adverse effects. Over-medicating a migraine is known to make the pain come back worse, these are called 'rebound headaches' or MOH medication overuse headaches. These types of headaches are the most common chronic headache disorder and usually occurs in people with pre-existing headache disorders, like migraines. The medications linked to these headaches are benzodiazepines, barbiturates, and opioids. As with any sort of medication, migraine drugs also have a chance to have other adverse effects such as changing mood, appetite, and sleepiness. The most common type of medication given for migraines, amitriptyline, is a low dose form of an antidepressant, which again can cause many unwanted side effects.

CAM treatments are used for many different medical problems. CAM stands for complementary and alternative medicines. These include massages, acupuncture, chiropractors, meditation, herbal therapy, and any other treatment that a prescription is not needed for. Diet and supplements are considered CAM treatments. Out of all those surveyed in a national study, nutritional treatment was the second most popular CAM only following avoidance of light. The author, Jieun Lee, even said, "In addition to traditional pharmacological treatments, various CAM treatments such as psychosocial treatments, nutritional treatments, and bodywork therapies can be recommended to chronic migraineurs in order to manage their migraine symptoms."

Within the context of the article this is saying that doctors should suggest more than just medicine to treat migraines. Jieun goes on to explain that these are the most popularly chosen CAM treatments because they are the most accessible and most economically sensible options for most people

Food and nutrition are a very sensitive and emotion provoking subject for many people for many different reasons. Changing someone's diet or food intake is also a huge change to make. It affects energy levels, time, money, emotions, and almost every other aspect of one's life. With that being said, changing diets or foods is not something people like to do, so the fact that so many have done it must correlate to a relief in some part of the migraine severity.

Migraines can be caused, triggered, effected, and relieved by many different substances or practices. As discussed, medications can have adverse effects, eating in a healthier manner however, does not have these unwanted side effects. Food and nutrients might not be the biggest factor in migraine pain, but they do hold a key that was not thought of until recently. However, changing diets is not an easy thing and for most people it takes a lot of convincing for them to make said change. There is no perfect migraine diet or food to eat but, choosing to eat in a more healthful manner can help reduce migraine severity, duration, and frequency.

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Expressive- English 2010

1st Place Winner: Jacey Messer, "Conquering Fear in Kiwi Skies"

For Professor Alexis Taylor

I found myself in a foreign country surrounded by the sounds of unfamiliar accents enthusiastically expressing thrills of joy. I was about to embark on one of my most treacherous adventures yet—bungee jumping. My cousin, Merrick, and I were the only ones brave enough out of our family of twelve to take on the challenge. I couldn't imagine passing up the opportunity to plunge into the breathtaking landscapes of New Zealand. I felt invincible. Yet, as I watched others take the leap, a wave of regret hit me. The world around me seemed to blur, and all I could think was, *'How did I get here? I can't handle this. This is a mistake.'*

Suddenly, I was brought back to reality, "Jacey! Jacey?" Merrick exclaimed.

Everything around me became clear. I really was standing on a platform in the middle of a valley 440 feet up only being held up by a few cords anchored to the surrounding cliffs. I felt like I was a tightrope walker, and one mistake would end it all. I could only see rough, rugged canyon walls covered with lush green vegetation.

Merrick's eyes sparkled with excitement, "Are you ready to do this?"

Honestly, I wasn't ready. The day before, I was eager to check a once-in-a-lifetime task off my lofty bucket list, but today it took all my focus to take a breath. I nodded back, faking my best smile and said, "This is going to be awesome!"

How had I been so excited for something which now terrified me? There had been other things in my life that had been scary for me, but in the end, I had always been able to overcome that fear. I was anxious for my freshman year soccer tryout, but I made the team. A week before I felt nervous about passing my math test and although I didn't do great, but I made it through. I

had even recently gone mountain biking, and I went through a technical part of the trail that had petrified me for years. I was like a phoenix. I always rose from the ashes no matter how difficult something seemed. Jumping off a ledge with only a bungee attached to my feet was different. This wouldn't be something that I could simply overcome if things went wrong. I would be dead. There would be no more doing the impossible.

A big burly man who looked like he would post on social media with the hashtag #vanlife instructed me to take a seat in a dentist-looking chair. I sat down and he began giving me directions on what I needed to do but I didn't hear a word he was saying. If I needed to understand directions at any time in my life, now was the time. I felt disconnected from everything around me.

"I am in New Zealand."

"I'm a 17-year-old girl in New Zealand."

"I'm a 17-year-old girl about to bungee jump in New Zealand."

I somehow knew to stand up and shuffle myself to the end of the 1.5ft x 1.5ft platform. It was just big enough for my feet. Once again, the big man instructed me, "The camera is over there. Wave at it and smile." With wide-eyed terror, I smiled and waved. I felt like Katniss Everdeen volunteering myself as tribute except at this moment I wasn't brave or resilient. I was possibly waving goodbye to everyone I loved.

Standing on the edge, I took in the scene realizing just how extraordinary it was. If this was going to be my last moment on Earth at least I had been a witness to something wonderful. My heart pounded and my hands grew sweaty as the foreign accents counted, "One. Two. Three." With all the strength I could muster I leapt headfirst.

The once sharp cliffs covered with brilliant trees faded into a green blur as I fell. Time seemed to stand still as I fell and fell and fell. The advertisement of an 8.5-second freefall seemed amazing when I decided to take this venture, but I had no idea that 8.5 seconds could feel like minutes. Blood rushed to my head and every part of my body seemed to squill with exuberance as the bungee caught and sent me soaring back up. I felt like I was defying every force in gravity until I reached my peak and went flying back down. My body felt like a yo-yo completely reliant on the string as it brought me up and down again and again.

Somehow, I remembered that after a couple of bounces, I needed to pull a string that would help me face straight up again. I found the string and pulled with all my might, and I instantly sprang back up. I would be pulled back up to the platform in a matter of minutes. As I waited, I felt like I was a whole new person. I had been consumed by the flame of fear and was left as a pile of ashes. Now overlooking the valley, I no longer simply saw rough rugged canyon walls covered with green vegetation, but I saw resilient greenery clinging to the rocky surfaces beautifying something that would be threatening otherwise. I saw plants consisting of mosses and ferns creating pockets of hope. These living things had overcome and survived conditions that seemed overwise impossible. At that moment I was reminded that I was a phoenix. I was an overcomer. Like the vegetation, I could beautify the rocky ground I was planted on. I was filled with joy. I had accomplished something that I felt was overwhelmingly scary.

As I stepped back onto the solid ground, I was sure I could do anything. I know now that I am an overcomer, and I will rise from the ashes despite the challenges I face.

2nd Place Winner: Anne Magee, "Vampires and College"

For Professor Alexis Taylor

It was late August of 2020, and I was moving from Salt Lake to Cedar City, to begin my freshman year at Southern Utah University. My parents had come with me, to help me set up my things and make sure everything was ready for my first year of college. We'd just finished setting up–my bed was made, my cups, bowls, and plates were in the kitchen, and I'd hung up my clothes in the closet. Things seemed ready to go, but we weren't.

Together, we sat on the red couch provided by the apartment–the kind that managed to feel both soft *and* hard at the same time–saying a prolonged goodbye, attempting to delay the inevitable. However, I knew my family needed to go. They knew it, too. They had a long drive back to Salt Lake ahead of them, and it was time for them to get going so they could be home before dark (as driving in the dark is something my parents can't bear the thought of).

"Well," Dad said, slapping his thighs and standing up in that very dad-like kind of way, "we should probably get going."

My mom and I both stood up following his words. I tried to be strong, not letting my eyes well with tears as they got ready to leave.

"I love you," I said, giving each of them a hug. "Drive safely!"

"We'll call you when we get in," Mom said. I gave her another hug, and walked to the door with my parents.

"See you!" I said.

"We'll see you," Dad said. We exchanged one final hug, and they went on their way.

As the door shut behind them, I finally let some of the tears fall. Here I was, all by myself. My roommates wouldn't be moving in until tomorrow, so I'd be alone for the next little bit.

A sense of loneliness began to sink in as I sat in my apartment, back on that almost-comfortable couch, in that clean, but well-used living room. I didn't really have a friend I could go hang out with, and with it being 2020, meeting people was going to be a challenge all year. For once, I truly had *nothing* to do. So, I did the one thing I can always do, when sadness or loneliness or hopelessness begins setting in. I pulled out my computer, opened up a blank Google Doc, and began to write.

The concept was simple. What if vampires were in college?

It started as a random, fun idea I came up with to pass the time on a lonely day. I love vampire stories, and I was new to college, so I figured I'd just combine the two and write about a vampire moving into college, expecting to have a pretty lonely time. As the days, weeks, and months passed, though, my idea began to evolve. I got to start turning a general concept into a real story. I began asking myself how the story would go. How would the vampires in this story work? How would they keep themselves hidden from humans? Would any humans find out about them? What if one of the characters got turned into a vampire?

Soon, the story took shape. I created a cast of characters, and I enjoyed setting some time aside every day to tell their stories. And although this was a story about vampires, my characters felt relatable. Sean was the only vampire in a family of humans, because who doesn't feel like an outcast sometimes? Jacob was a vampire who was typically very impulsive, but was given a lot of responsibilities to juggle, because everyone has to learn the balance between excitement and

obligations. Tim was a human struggling to figure out where he fit in, but found a community where he least expected it when he was turned into a vampire.

My little story idea about vampires in college also became a safe place I could turn to when I was stressed. When I wrote, I could take a break from the demands of my day and let my imagination roam. Thinking about my characters and my worldbuilding would bring me joy on difficult days. And, as a freshman in college, combining my interest in vampire stories with a story about college helped me make sense of my own college experience. Everyone knows 2020 was a difficult year, and I had plenty of days where turning towards my writing, to the world that I'd built inside my head, was exactly what I needed. It helped me to handle them, it helped me to process them. Yes, most of the time, I was writing about vampires. But I was *also* writing about college, the challenges it poses, and what starting an unknown new chapter of life feels like.

So, where is my story today? I'll be honest, I've had a hard time figuring out the specifics of the plot, but I'm still working on it and it's getting there. I still have my Google Doc, with the same first words I wrote on that day back in 2020, and I open it often. I enjoy looking back and seeing the ways my story grew and changed, as I grew and changed myself. Writing it continues to help me relax when I'm stressed and lift my mood when I'm sad. I continue to explore new ideas and concepts within it, as I come into new situations and have new experiences in my own life. And while I'm nowhere near completion of the story, one day, I hope to put it out into the world, where it can help other people feel the same kind of joy it's brought me.

Expository- English 2010

1st Place Winner: Joshua Olsen, "Entropy and Huntington's Disease"

For Professor Merry Gravett

Introduction

Entropy is defined as the second law of thermodynamics. In summary, entropy is the amount of randomness or disorder something possesses. For the purposes of this article, entropy will only be used to describe this concept.

Everything from molecular structure to a skyscraper to a human being has entropy. Everywhere we look, everything that is tangible—and even much that is not—exhibits degrees of entropy. The conversion of liquid to gas, the change of a clean room to a messy one, the deterioration of metal to rust, the aging of an old body, and the dimming of a mind are all examples of an increase of entropy (Oshin). Relative to the human experience, low entropy means order, organization, and direction, while high entropy means disorder, catastrophe, and anarchy.

Entropy, in theory, is directional. It moves with the arrow of time (Gravett) and can only be reversed when energy is expended to change it. In theory, the law of thermodynamics says that entropy is irreversible. In practice, one can reverse entropy. This concept will be explained later on in this paper. In brief, metal can be unrusted, the aging process can be slowed, and mental disorders can be prevented and reversed according to the theory of entropy.

One such mental disorder is Huntington's disease. According to the National Library of Medicine, Huntington's disease (HD) "is a progressive disorder of motor, cognitive, and psychiatric disturbances" (Carron). This genetic disease facilitates the progressive degeneration

of nerve cells in the brain. Many symptoms, side effects, and mental disorders, such as obsessive-compulsive disorder, mania, depression, and bipolar disorder, are also associated with HD. Death eventually follows within 10-30 years (Carron).

This paper strives to bridge the gap between what is known of the irreversibility of HD and how one can use free energy in various ways to decrease or slow the process of this neurodegenerative disease. In other words, this paper will explore how entropy affects patients of HD, and how one can act to increase the quality of living.

Background

As mentioned in the introduction, entropy is the second law of thermodynamics, which states that entropy cannot decrease. Sabine Hossenfielder, in her book, *Existential Physics*, writes about the irreversibility of entropy—in theory that is. Mathematically it is possible, but such things are never observed or seen in the real world. Hossenfelder states that when a star no longer has the substances to fuse and create energy, it will "...dim or, in some cases, blast apart into a supernova. But we…never [see] the reverse. We…never [observe] a dim star that [takes] in photons and neutrinos and then split[s] heavy nuclei into hydrogen before spreading out to become a hydrogen cloud" (Hossenfelder 53). In other words, things in a low-entropy state, or an unlikely state, always move to a higher entropy state, or a more likely state. "Likely things are likely to happen" (Hossenfelder 55). This creates an arrow of time, which is the increasing of entropy, because that is most likely to happen. "When pieces of a broken window fall to the ground," continues Hossenelder, "their momentum disperses in tiny ripples in the ground and shock waves in the air, but it is incredibly unlikely that the ripples…would ever synchronize in just the right way to catapult the broken glass back into the right position" (Hossenfelder 55). It is possible for randomness to randomly lower entropy, but it is just very unlikely.

In regards to the aging process, Hossenfelder uses a similar example: “We age because our bodies accumulate errors that are likely to happen, but unlikely to spontaneously reverse. Cell repair mechanisms can’t correct these errors indefinitely and with perfect fidelity. Thus, slowly, bit by bit, our organs function a little less efficiently, our skin becomes a little less elastic, our wounds heal a little more slowly” (Hossenfielder 55). Just like the glass example, the reason entropy has an arrow of time is because it is unlikely for it to lose entropy, to become unrandom, or to “fix” itself. Neurodegenerative diseases, such as HD, increase in entropy until a state of equilibrium is achieved. This type of state is defined by a state that does not change on average. Hossenfelder elaborates, “The equilibrium state is the state that you're likely to reach, and the state you are likely to reach is the state of high entropy” (Hossenfelder 54). In this, she implies that once a human has reached this state of highest entropy, or equilibrium, the individual has aged and died, succumbing to a ultimate state of unchange. But what if one could influence these unlikely events? Could it be possible to reverse such a fate?

In practice, entropy is reversed every day. Take a messy bedroom for example. The dirty and chaotic room with clothes and toppled chairs has high entropy. If one wants to lower the entropy, they can simply apply energy and clean the room, fold the clothes, dust the desk, and reorganize the chairs. This energy that is applied is defined as free energy. “Free energy is useful energy which can bring about change” (Hossenfelder 51). This cleaning of a room, or reversal of entropy, is completely plausible and possible, even if, in theory, it is unlikely to happen. In other words, free energy is everywhere, and it is a force that decreases the amount of entropy in something. It is the only way to stop the inevitability of entropy. Free energy can change the equilibrium of entropy when, for example, one cleans their room, glues a broken toy, or even when gas freezes into a liquid.

This concept of entropy has also been analyzed in the context of many neurological diseases. As entropy increases, or free energy decreases, the disease becomes increasingly irreversible. In an attempt to better diagnose neurodegenerative diseases and understand this concept, one study does just this. Using the Gait scale and Multiscale Approximate Entropy (MAE), researchers An-Bang Liu and Che-Wei Lin studied how HD affected the walking of an individual by placing force-sensitive insoles in the 64 volunteers and having them walk 77 meters as normal as they could. This information was then processed to see how the neurodegenerative disease affected the walk time and ability of a specific individual. The results were recorded using MAE (Liu and Lin) and were found to agree with what Hossenfelder has previously studied. Although the test did not mention much about age affecting the entropy, Liu and Lin state, " Age and sex may be two confounding factors influencing the results of gait analysis and complexity" (8). They then expound on this:

> It has been found that multiscale entropy of stride intervals decreased with scales in paced walking in healthy volunteers [17]. Lipsitz and colleagues proposed the "Loss of Complexity" theory, which hypothesized that aging, degeneration, or diseases were associated with decreases in the complexity of the signals of different physiological systems, such as heart rate variability and fluctuation in blood pressure. (Liu and Lin 3)

In other words, as the entropy of a disorder increases, so too does the complexity of the signals sent from the brain to the body to make it move on command. Or the degenerations of the mind, as the disease and randomness increases, become much more prevalent, regardless of age, though it is hypothesized that this may increase such entropy.

In a similar analysis, Alexandre Vallée and his colleagues come to a similar conclusion. They state, " Entropy production rate is increased by several metabolic and thermodynamics

abnormalities in neurodegenerative diseases (NDs). Irreversible processes are quantified by changes in the entropy production rate" (Vallée et al.). This correlates with the results of the Liu and Lin study. Although Liu and Lin go as far as to directly correlate the aging process with that of contracting NDs, therefore increasing the entropy of the mind, Vallée states, "Aging is a major risk factor for neurodegenerative diseases (NDs). Molecular pathways that regulate cellular homeostatic mechanisms are liable to be perturbed by the aging process" (Vallée et al. 175). Vallée suggests that because of the aging process, the risk factors and the deterioration caused from NDs increase. One could then make the conclusion that entropy increases in such minds that contract these neurological diseases.

Irreversibility of HD Truly Follows The Arrow of Time

As mentioned earlier, entropy follows the arrow of time; it is one-directional. As one ages, the entropy increases, making it more likely that HD will come to be. As chaos increases within the mind, so does the most likely occurrence, which is the degeneration of order. Based on the definition explained above, HD is considered an irreversible neurodegenerative disease (Kim), and this could be due to the increasing entropy in this disease. The more chaos in the neurons found in the brain, the more the patient with HD is affected. HD makes it so that walking is harder, thinking is more easily disrupted, putting down solid memoires is severed, and feeling emotions becomes more unstable. Chorea, the involuntary, often jerky, and uncontrollable movement of the hands, head, and mouth, is one of the first symptoms of HD or the first expressions of entropy increasing. Again, as the disease progresses, one sees the entropy increase as well. Though usually harmless, chorea's higher entropic state depicts much greater deterioration underneath. HD, in regards to motor cognition, displays akinesia, dystonia, dysarthria, and dysphagia, all of which affect the motor ability of the patient. The patient begins

to fall more often, and problem-solving skills degenerate. Depression and anxiety increase, and often onsets of schizophrenia are seen. Dementia increases, and changes in personality are prevalent. Loss of voluntary motor control affects speech, and the patient is usually bedridden, needing the help of feeder tubes and other persons for support. All of these symptoms increase without anything to stop them, and the patient dies within 18 years after symptom onset, usually because of aspiration pneumonia (Carron; Kim; Liu and Lin; Vallée et al.). If the entropy is too high for the human body to sustain, it enters a state of equilibrium, which is death.

Amy Kim's article on the new avenues for treatment of HD states, "To date, no clinical trial has been successful in identifying disease-modifying treatments for HD" (Kim), only ways to cope with symptoms until the body gives in. This idea directly correlates with the theory of entropy; it cannot be reversed. As time moves on, HD follows the arrow of time, which brings the diseased to a state of equilibrium or, in this case, death. Finally, when there is no more room for free energy, or, in other words, when the subject can no longer tolerate the amount of chaos in their brain, they die. And death, which is universally accepted, cannot be reversed. This paper focuses only on the scientific view of humans and, therefore, does not have the time, nor the data to carry on the conversation to that of entropy and its point of view associated with the Divine.

At any rate, with the inevitably of HD and its entropy, one may lose hope. However, Kim does not give up. She continues, "Although current clinical trials may lead to the identification or refinement of treatments that are likely to improve the quality of life of those living with HD, major efforts continue to be invested at the pre-clinical level, with numerous studies testing novel approaches that show promise as disease-modifying strategies" (Kim). Regardless of the current irreversibility of HD, scientists alike attempt to find a way to fight the arrow of time. Can

the chaos truly be reversed? Perhaps the improvement of life is the reversal of entropy. This is expounded on in the next section.

What can be Done? Free Energy

Despite the fact, in practice and in theory, that HD seems to be irreversible, there exists free energy. What can one do to reverse the severity of HD? Unfortunately, as mentioned above, with the current therapeutic approaches, HD cannot be reversed. However, though it cannot be reversed, there exist methods that can help reduce or slow the effects of high entropy HD.

In the article "Huntington's Disease," a plethora of medications is suggested to help alleviate the effects of HD. Neuroleptics, typical and atypical, are used to help reduce the choreic movements and their related counterpart, myoclonic hyperkinesia. Benzodiazepines, tetrabenazine, and valproic acid help stabilize these two affected motor dysfunctions, while anti-seizure medication and psychotropic drugs help alleviate "psychiatric disturbances (depression, psychotic symptoms, outbursts of aggression)" (Carron; Kim). Other treatments include "[s]upportive care with attention to nursing needs, dietary intake, special equipment, and eligibility for state and federal benefits" (Carron).

In her study, Kim specifies even further some of the clinical trials that have been tested and how well they work to suppress the symptoms of HD: "Neflamapimod…is a small molecule that can penetrate the brain and inhibit the enzyme p38-alpha, which is typically involved in regulating inflammation and, if chronically activated, can negatively affect nerve cell communication due to excessive inflammation" (Kim). As the entropy in the brain affects connection between nerves and neurons, when that inflammation decreases, that entropy is also suppressed. She continues by suggesting that a Melatonin supplement would help the abnormal night-day ratio (Vallée). "Melatonin is a methoxyindole synthesized and secreted by the pineal

gland at night under normal light/dark conditions [243]. A current clinical trial (NCT04421339) has been designed to study the potential effects of melatonin supplementation on HD patients afflicted with HD-related sleep disturbance" (Kim).

As seen above, a patient with HD that includes these medical treatments, whether it be diet, medication, or outside help, can suppress symptoms of HD. All these attempts with free energy, are made to make one feel as if they are improving. In other words, "mocking" the free energy needed may reverse the entropy of HD. The next section will go further in depth.

Is It Really Reversing Entropy?

In an interview with Professor Merry Gravett about her experience with HD, she spoke about this concept. Gravett, when asked to describe how entropy correlates to HD, specifically how entropy moves from an unlikely state to a likely state, says, "On the surface level, it would appear, their behavior [patients of HD] is not more likely; it seems out of character. It seems strange…They behave this way [because] their brain is neurologically affected in a way that they are unable to put the mental energy into the system to control their behavior" (Gravett). In other words, those with HD are in such a state that interferes with the direct influence of free energy. This is the direct relationship entropy and free energy play; they contradict each other. For that, outside sources (medication, diet, therapy, etc.) have to be in place to counteract the increasing entropy, if only for a short time. Therefore, the increase in care to the symptoms, rather than the actual disease, could be considered a reversal of entropy.

Conclusion

Entropy is the second law of thermodynamics in which the amount of chaos and disorder in a system cannot be reversed. Huntington's disease is a type of system that increases in chaos and disorder until the subject reaches an equilibrium state, which causes them to no longer be

able to live. The only way to reverse entropy is by using free energy to change the entropy. Within HD, there are many facets that take part in the destructiveness of the disease, namely chorea, the deterioration of mind, the onset of schizophrenia and dementia, and the ultimate loss of bodily function. This terrible disease has made it only possible to suppress and relieve symptoms for a short time. This may not be the reversal of the entropy within HD, but for a small moment, the symptoms are reversed, and the ability to have a little more order and a little more homeostasis is enough to suggest that the amount of free energy that is able to be produced can, in fact, change the entropy of HD, if only slightly.

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Expository- English 1010

1st Place Winner: Elizabeth Tanner, "I'm Like So In Love"

For Professor Rosalyn Eves

Good boyfriends are hard to come by, and relationships aren't always easy. I have a fair amount of experience with good boyfriends, and a whole lot more with bad ones. For all the ladies out there looking to date them, I have written a review on three of my ex-boyfriends. There were plenty to choose from, so I ended up going with the three that I was in the longest relationships with- Enoch, Gerhig, and Dallin. Now, because it is important to not dwell on the past, and to stay positive and optimistic; I have also included a brief analysis of my current, (and best) relationship, showing why it works in general, and why it's better than the others. It really does do its job in making my movie romance dreams come to life.

First off we have the very first boyfriend, Enoch. Enoch is a walking red flag. While standing at an admirable 6'3", he is the type of guy you have to ask yourself if he is hot, or if he is just 6'3". While he does bear a shocking resemblance to Prince Eric, from The Little Mermaid- the old animated one- who was my childhood crush, there is something that just doesn't sit right. I was so totally in love or whatever, I ignored the gut feeling because Prince Eric was the good guy in the movie right? Red flag number one, he will take another chick to his senior prom even when you are dating. I shouldn't have to explain why this is bad. It makes you feel like you are not good enough for his attention. He has a "cute" little habit of kissing other girls (different than the prom one) while you are dating and claims it's not that big of a deal, which is yet another major red flag. Next red flag, he says his ex was crazy. If you know you know, and for those of you who don't know, it means that he's the crazy one. If a guy ever tells you his ex is crazy, run. Red flag number four, and this is a big one so if you are looking to date

him you'll need to be able to overlook this: he does not listen when you set boundaries and he crosses them with ease. A note for any relationship, if your friends don't like him, that's not a good sign. This man makes up excuses to not meet your friends and only wants to hang out later in the evening, so you don't get to hang out with your friends. My friends did not like him, and they were quick to see that I was so much more in love with the idea of love. I will admit he is not all bad, he does have a very nice singing voice, but don't let him sing you into a false sense of security. It is really easy to listen to what he says and think that the relationship problems are your fault, which is one of the biggest red flags. He is very concerned about having everyone like him so he will avoid telling people that he is in a relationship and claim it is not because he is keeping his options free, just that he is being friendly. Overall not a great experience. Only 1 out of five 5 stars did not work as intended.

Gerhig is a sweetheart. Also yes his name is Gerhig. He is pretty normal compared to the others I've dated. If you decide you don't want to date anymore, he is very reasonable and can just be friends… even if you were the jerk. He looks like the target version of Edward Cullen from Twilight (and I know how bad those movies are, but I absolutely love them). He is only 5'9" so for all my tallish ladies out there, be ready to either give up your heels or look like the one who wears the pants. He has an enjoyable friend group, but it's almost too easy to date all of them which may cause problems further down the line... The biggest downfall to this man is that he was friends with Brandon, a kid who seems cool at first, but is really just a mean spoiled overrated guy. He does have pretty strict parents which can make hangouts difficult, and the curfew of 10:00 on the weekends even harder to work around, especially for school dances. He can cause one to get the ick because he tends to talk like Scooby Doo, which is a fun little quirk,

but also gets old fast. He does do a good impression, however. Gerhig doesn't have a ton of money to spend on dates, but he is good at making them fun. He is a solid ⅘ stars.

Finally, Dallin is a bit of a wild card, with some really good pros, but really bad cons. Some of the good qualities about this man are, he is rich and will buy you really nice things. He will take you to places that he knows you love, like the dinosaur museum or to your absolute favorite restaurant, or to go try your first escape room. He keeps a list of the things you say you like so he can surprise you with them. You can tell that he really does love you by all the little things he does, like making food for you and bringing it to you for your lunch. He works out a lot so he is buff, and will be going to the Olympics. He does play a fair amount of Zelda, which is not ideal but it definitely could be worse, like Fortnite. He is also French. On the bad side, He is very self-centered and cares a little too much about how he looks. He definitely sets off the gaydar, which is normally totally fine, but is less desirable when you are dating him. He also is kind of really weird. Like doesn't know when people are done hearing all about how he was blessed with an amazing physique, or at your sisters' wedding he'll shake his butt on stage when it definitely is not the mood. He also says his ex was crazy, and won't be the most liked by your friends. He had a pretty rough childhood despite growing up pretty wealthy, which has led to some really intense attachment issues which can leave you feeling like you can't have any other friends, or go two days without seeing him. This boy cries a lot, more than me which is actually impressive, but when that's all he does, it is very emotionally draining. Dallin is a big boundary crosser, like Enoch. He will listen, but after about two months he either forgets or thinks that they disappeared because you say you love him. Finally, if you try to break up with him, he will tell you no or tell you to take it back over and over every time you try until eventually you just

need to ghost him and maybe move countries to be safe. He rates a ⅖ overall, date at your own risk.

Sometimes people find themselves asking why cute relationships are only for in the movies, and why none of their relationships have brought them long-term happiness. This is something I found myself asking a whole lot, but I did find one. So as promised I am going to tell you a bit about my current relationship (which might get a bit cheesy), and why it works so much better than the others listed here are some of the steps I've learned to having a cinematic relationship.

When looking at a relationship there are a lot of things to keep in mind, My boy makes a great other half to my relationship and has made me the happiest I've been. I couldn't ask for better. He listens and respects boundaries. He takes time to see what is important to me and what makes me smile, like always taking me swing dancing, or surprising me with cookies. He gets along great with my friends, making sure that when they are having a bad day, we go get them ice cream. He lets me drag him along to things, and while he is not a people person, he always does his best to get to know and be friends with my friends.

One of the most important ingredients to any good relationship, as you can probably guess, is communication, which you can see so much more in this relationship than with Enoch Gerhig or Dallin. Communication is one of those things that is an acquired trait for many (and if you're like me it took a lot of time and practice), so when looking at this relationship you can see how communicating plays into it. A part is understanding. We work with one another, recognizing flaws, and being better by working with them instead of against them. It took me a minute to realize that I have to vocalize how I feel because contrary to what I wish, he cannot

always read my mind, or pick up on the little hints I'm dropping. He lets me explain what I am feeling so that he can understand it.

One example of this is in the movie Ice Age 2, The Meltdown, when Ellie and Manny struggle with communication, having arguments that leave them both upset and not understanding one another. As the series of movies progresses, you can see that developing good communication skills allows them to rely on one another, leading to both of them having a larger amount of happiness than before they had met. In the case of Enoch, he puts most of the fault on the other person and does not listen, making it hard to speak up, and sometimes even scary, knowing that the opinion will not be listened to. It is important to fully understand the other person's point of view before getting upset and causing so much miscommunication. Something I have learned with my boy is to constantly ask questions about how the other is feeling, and making sure to give the time to be listened to. It is so important that you never belittle another person because it will leave them feeling unsafe, unheard, and even unwanted which is something that I had a hard time with in the other relationships. So rather than beating around the bush when we want to hang out, he tells me he wants me to come over and vice versa which helps both of us not to feel like it is a pity hang out.

Communication then feeds into setting and respecting healthy boundaries. If you do not feel comfortable talking to your partner, or confronting them when something makes you uncomfortable, you are far less likely to set those boundaries. Dallin liked to push those boundaries and cross over them when he pleased. Showing that you respect boundaries puts more trust in each other and forms a stronger sense of security, leading to more overall happiness. It can start difficult, but the more you do the easier it becomes. The movie "To All the Boys I've Loved Before" can be an example, especially in the beginning where Laura Jean

and Peter originally come up with their so-called “dating contract”. They go over some of the things that are a must for their relationship, and later on, they learn to speak up about setting new boundaries after they actually fall for each other. There is danger in setting and following outrageous boundaries, however. You do not want to do it to the point where it is controlling. I watched so many of my teammates not be able to wear what they wanted to or go out to parties because their boyfriends said no, or all my guy friends who would say they couldn't talk to me anymore because their girlfriends didn’t want them to have women friends, but not my boy. He is so uncontrolling it gets annoying, I ask what shoes look best, and he says they all look good when they, in fact, do not all look good, you can’t wear shoes that are a different shade than your shirt and I just want his opinion. Any level of what he does tho is far better than the alternatives.

This relationship has a lot of trust. Knowing that both he and I would so much rather take a nap than even come close to cheating is definitely a comfort. I know I can trust him with secrets, and big news that I can’t tell my family (like when I first found out my sister was pregnant) and he will just listen. Disney shows us that we should expect the perfect prince to move heaven and earth to be with us. But a good relationship doesn't start with perfect people, rather becoming perfect for each other, by building up trust. In many of the old animations from Disney, the prince has to do very little to get to know the princess for her to be all over him. I mean how can she really trust him, he could be a killer, or worse, enjoy sweet pickles. Whether it’s a kiss to wake you out of a deep sleep, or looking at all the other ladies' feet in the kingdom, one thing is for sure, they don’t get to know each other very much before Disney shows the wedding. For me personally, I need to know them well enough that I can trust them in all aspects before getting married. You ought to check if you are in love with him, or just the idea of a prince charming. In the movie Frozen, we see just how fast Anna is to jump into a relationship

with Prince Hans, which causes her to be blinded by love, and I'm talking head over heels. She was so blind that she didn't know his intentions, she trusted him so much, but when she needed him, his true nature came out. This is exactly what I did. I wanted so badly to have something so special, that I met and dated several Prince Hanns' jumping into a relationship without first taking the time to see what type of people they were. I finally found my Christoff, only better, someone who I can trust will always be there. My relationship is my princess story in my version, not Disney's, and now, I am just waiting for the happily ever after.

The closer my boy and I get, the more we know what to do just to get the other to smile, whether it is teasing one another, or surprises with food (because food is definitely the best love language). By building a healthy baseline of communication, trust, and boundaries, relationships are able to thrive, and this one does its job and makes both me and him happy. It truly creates that "perfect" fairytale love. While it will always have new issues, they will always be able to get worked through.

Expository- English 1010

2nd Place Winner: Nicholas Ralph, "Israel vs Hamas"

For Professor Rosalyn Eves

Throughout several decades the constant conflict between Israel and Hamas has affected millions of lives. Thousands have been killed and even more left injured throughout the years leaving these areas beaten, battered, and bruised. The men, women, and children's lives have all been affected in many different ways, so what's the history between the two and how did it all start?

The conflict between Israel and Hamas has not come quickly. This war has been brewing for decades. Ever since 1960 when Palestine began its pursuit of an independent state, politics existing have been rife with divisions. However, the national movement split formally in the 2006 elections. There has been a long-standing tension between the two that has affected millions of lives beginning around 2006. In 2006, the election was between the two main parties, Fatah, and the change and reform group later known as "Hamas."

The Central Elections Commission released the final results in January 2006. They announced that Hamas had won the parliamentary elections, of the 990,873 valid votes for the proportional, Hamas received 440,409 (44.45%) while Fatah reached 410,554 (41.43%). Out of 4,733,838 valid votes in the district, Hamas won with 1,932,168 votes compared to the 1,684,441 received by Fatah. This gave Hamas 74 of the possible 132 seats giving them a 56% majority in the legislative court.

This caused an extreme divide in political, geographical, and strategic ways. Factional fighting began immediately after the two parties failed to reach a power-sharing agreement. This fighting led to an estimated kill count of 616 to 659 leaving thousands more injured. There were also a confirmed 133 torture cases in 2006 alone. This led to extreme cases of Israeli human rights groups becoming more present. In 2007 Hamas seized full control of Gaza. Fatah led the Palestinian Authority (PA) in the West Bank. These are just the first of this long history.

On December 19th, 2008 a six-month truce between Israel and Hamas expired. Just a few days after Christmas, Israel launched an extreme military operation against Hamas including over 50 fighter jets and attack helicopters. They entered the Gazan airspace at 11.30 am. Israel's operation targeted Hamas bases, police headquarters, and offices. Palestinian sources claimed that the Israeli forces were responsible for killing 225-292 Palestinians and wounding over 1,000. Shortly after Israel opened a ground war against Hamas, which led to around 1,200 Palestinians and 13 Israelis dead, this was known as the “three-week war.”

Gaza was faced with blockades from both Israel and Egypt because of their countries’ security concerns. Conditions in Gaza deteriorated severely. Poverty became an exponentially larger common ground, this was due to growing unemployment and deepening public health concerns and problems.

In 2011 uprisings from Arab countries inspired demonstrations in the Palestinian Territories. Both the West Bank and Gaza had protests after many years of harsh conditions caused by the long-standing tension between Fatah and Hamas. The largest issues were certain economic policies that benefited the people and improved living conditions. Fatah and Hamas responded by signing a unity deal brought on by public pressure. This short-lived deal brought

together the 13 factions. Since it only lasted less than one year, Gazas' conditions deteriorated much worse than expected.

According to the CIA's report, the population density in 2011 of the Gaza Strip was 4,353 people per square kilometer. This became one of the most densely populated regions in the world. To put this in perspective, if this is compared to Cedar City, with a total of 93.10 square kilometers, it would have a population of 405,265 people! This density has only increased since while the conditions have only deteriorated. As of 2012, 2 million people lived in the Gaza Strip forcing officials to question if it would be liveable by the year 2020.

Just a few years later in 2014, Israel launched Operation Protective Edge. This was in response to rocket attacks from Gaza. This being the third major conflict within 7 years caused catastrophic damage and chaos in Gaza. Within 50 days of hostilities from July 8th to August 26th, 2,251 Palestinians were killed while 1,462 of them were believed to be civilians. This includes 551 children and 299 women. Israel's casualties were much smaller with only 66 Israeli soldiers and five citizens died including one child. In total, Palestinians suffered immensely with 11,231 injured including 3,540 women and 3,436 children. Nearly one-third of these children then faced new disabilities as a result of their injuries.

This conflict led Gaza to a massive displacement crisis. In total over 12,600 housing units became destroyed while 6,500 received severe damage and an additional 150,000 housing units sustained varying degrees of damage and destruction leaving them inhabitable. At its peak, nearly 500,000 people were left without a place to stay.

In 2017 there were 38 named occasions when Israeli forces opened fire on Palastinians. The most notable being on October 31 when Israeli security forces and settlers fatally shot 83 Palestinians in the West Bank leaving an additional 3,015 injured.

The same year, the Palestinian Authority attempted to pressure Hamas into reconciliation by cutting payments for numerous necessities including electricity, government salaries, and fuel. However, a preliminary deal between Palestine and Hamas caused disputes about public finance and Hamas' refusal to demilitarize. This led to an assassination attempt on Prime Minister Rami Hamdallah in March 2018. The Palestinian Authority blamed the attempt on Hamas, leaving extraordinarily dim prospects for compromise between the two.

Later in March of 2018, tens of thousands of Gazans began the "Great March of Return" These occurred every Friday for six weeks at the border fence with Israel. As independent activists originally led them, the demonstrations were co-opted by Hamas. They would burn tires, throw Molotov cocktails, and launch stones with slings, they would also seek to breach the fence. Israel responded to these protests with live fire leaving over 100 Palestinians dead and wounding thousands more.

Throughout the rest of the year, protests near the border fence persisted in fluctuating intensities. Their peak was in May during the opening of the U.S. embassy in Jerusalem. This took place on the 14th of May when an estimated 50,000 Palestinians were in attendance and at least 60 were left dead with thousands more injured afterwards.

In November one of the greatest exchanges of fire between Israel and Gaza since the way in 2014. The Gaza military fired over 450 rockets and mortars into Israel. Israel then responded with airstrikes against military targets. During this time, the United Nations special coordinator for the Middle East Peace Process and Egypt sought to bring peace, de-escalate violence, and stabilize Palestinian politics. Egypt connected the two in a cease-fire in November. However, the danger of continued violence remained without a permanent peace solution.

Several years later on May 10, 2021, the Israel-Palestine conflict began with a major outbreak of violence. Out of the numerous factors, one of the greatest being in East Jerusalem where discriminatory efforts were being made to force Palestinians out of their own homes. This led to 11 days of hostilities between the Israeli government and Palestinian armed groups broke out in Gaza. The Israeli military claimed to have struck around 1,500 targets in Gaza using ground and air munitions. The United Nations stated that at least 120 Palestinian civilians died in the attack. In response to this attack Palestinian armed groups, one being Hamas, launched over 4,000 rockets and mortars at Israel. The UN stated this resulted in the deaths of 12 civilians in Israel and at least 7 Palestinians in Gaza.

Israel authorities demolished 666 Palestinian homes and other structures in the West Bank, including East Jerusalem within the first 8 months of 2021. This led to the displacement of 958 people, which was a 38% increase compared to the same period just a year earlier in 2020. In July, Israeli authorities removed most residents in the Palestinian community of Khirbet Humash in the Jordan Valley because they were in a designated “firing zone.” Leaving 70 people homeless, 35 of whom were children.

To date, the most significant escalation in the decades-long conflict of Israel versus Palestine occurred on October 7, 2023. Hamas launched a surprise attack on Israel from the Gaza Strip by air, sea, and land. The attack included rockets targeting Israel as well as about 3,000 militias breaking through the Gaza-Israel border, as well as attacking neighboring Israeli communities and military bases. The assault is believed to have been planned for this specific day on Shemini Atzeret or the eighth day of the gathering. This marked the 50th anniversary of the attacks that sparked the Yom Kippur War in 1973.

These attacks continued between October 7th and the end of December 2023. As of January 12, 2024, Israeli sources reported roughly 12,000 rockets fired at them while the Israeli air force announced that 6,000 bombs were dropped on Gaza between October 7th to October 12th. On the 19th just 7 days later, IDF missiles struck a Greek Orthodox Church in Gaza leaving at least 16 Palestinians dead.

This conflict is long-standing and has led to the death of thousands of people and has only caused chaos and misfortune for the citizens. The two countries have caused thousands to become displaced and homeless with nowhere to go. This conflict will continue to go on as long as no long-standing peace negotiations are made with a real conclusion.