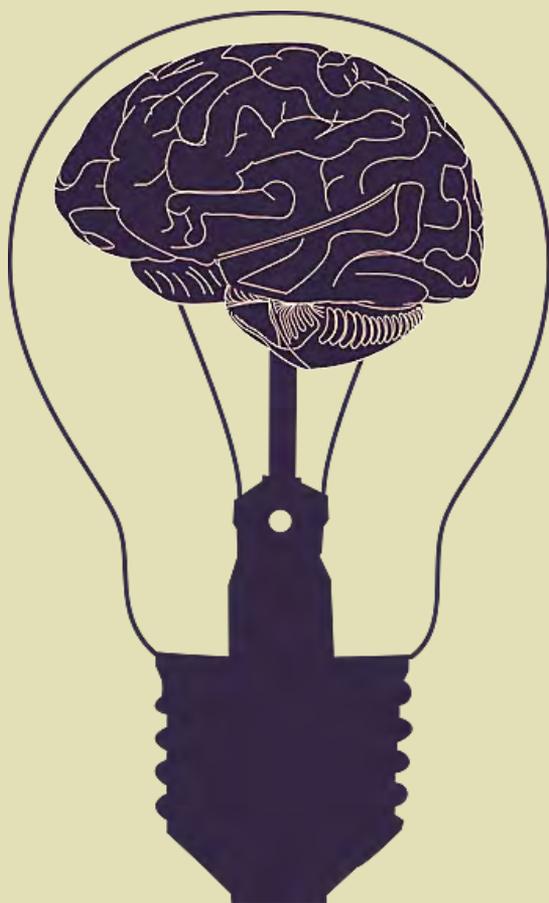


HONORS JOURNAL

SPRING 2019



LAGUARDIA COMMUNITY COLLEGE

**HONORS
PROGRAM
JOURNAL**

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Black & Blue

By: Ricardo L. Rosado

A recent article discussing the topic of identity states that, “according to Ubuntu philosophy, which has its origins in ancient Africa, a newborn baby is not a person. People are born without ‘ena’, or selfhood, and instead must acquire it through interactions and experiences over time. So the ‘self’/‘other’ distinction that’s axiomatic in Western philosophy is much blurrier in Ubuntu thought”(Birhane). This idea of knowing oneself through a group or community is a central theme in James Baldwin’s short story, “Sonny’s Blues,” which focuses on two brothers who attempt to establish a connection after years of miscommunication and estrangement. In the end, both brothers must do some soul searching in order to reconcile their past and move forward. “Sonny’s Blues” illustrates the pivotal role community plays among African Americans in establishing a sense of personal identity and racial identity.

Racial identity is defined as a sense of collective identity based on one’s perception that he or she shares a common heritage with a particular racial group (Carter and Goodwin 292-293). At the beginning of the story, the narrator has forsaken his black identity and instead has embarked on a more Eurocentric approach to life in hopes of transcending his situation—namely being born Black and impoverished. One example of this can be seen in the fact that he is completely unaware of what is current with Black music, describing one song he couldn’t identify early in the story as “black and bouncy”(20), and again in his assumption that his brother, Sonny, meant to play classical music when he said that he wanted to become a musician (31). Speaking of the narrator in one of his essays, Richard Albert notes:

He had tried, as best he could, to reject his black self through becoming a respectable math teacher and dissociating himself from the black culture as much as possible. He was careful not to do those things that he felt whites expected blacks to do (181).

The narrator’s attempts at assimilation isolate and disconnect him from the Black community and his family. Yet, the narrator does not realize is that, despite his efforts at trying to espouse a more “white” mentality, he will never be fully accepted into this community because of his skin color. It is the equivalent of trying to fit a square peg in a round hole, so the only way that the narrator will ever feel comfortable is to find the space where he fits in.

The dissonance that is created by the narrator's conduct and his reality is the underlying conflict of the story and it is not resolved until he goes back to reconnect with his community and family.

The narrator's inability to fully assimilate into American society is precisely what African American sociologist and historian, W.E.B. Du Bois, described as "double-consciousness." Du Bois explains double-consciousness by saying:

One ever feels his twoness—an American, a Negro; two souls, two thoughts, two unreconciled strivings; two warring ideals in one dark body, whose dogged strength alone keeps it from being torn asunder... He simply wishes to make it possible for a man to be both a Negro and an American, without being cursed and spit upon by his fellows, without having the doors of Opportunity closed roughly in his face.(9)

Here Du Bois shows that the struggle of being a Black person in America is that their skin color automatically sets them apart as inherently lesser in the eyes of White America. No amount of conformity will allow them to fully integrate into American society. Du Bois advocates for people of African descent to build their communities because only their own people who share a similar history, culture, and experience will ever accept them. Baldwin perpetuates this idea of double-consciousness by introducing the juxtaposition of light vs. dark throughout the story. This motif is evident from the opening paragraph when, after reading of his brother's arrest in the newspaper, the narrator, fixated on the story, "stared at it in the swinging lights of the subway car... and in my own face, trapped in the darkness which roared outside" (17). Here the swinging lights are symbolic of his unsteady position in the white middle class society and the elevated position that he is trying to achieve; yet the view of his reflection in the backdrop of the subway window represents the limitations of his aspirations because it seems that his inner self is "trapped" in the darkness of the tunnel which mirrors his dark skin.

. Many Black psychologists, such as Janet Helms, have explored the manner in which people form racial identities in order to provide a framework for understanding the importance of race and the meaning of being a member of a racial group. The models of this process are often broken down into five stages: Pre-Encounter, Encounter, Immersion-Emersion, Internalization, and Internalization-Commitment (Carter and Goodwin, 308).

Throughout the story the reader can see how the narrator navigates his way through the first three stages of this model and how the reconciling of his identity crisis facilitates his ability to repair his relationship with his brother.

During the first stage, the Pre-Encounter, people tend to hold individualistic views about opportunities and rely heavily on work ethic to change their status; at the same time they may hold a belief that Blacks who do not do well are responsible for their lack of success (Carter and Goodwin, 309). This can be seen in the narrator's meeting with Sonny's unnamed junkie friend, who came to tell the author the news of Sonny's arrest, in the beginning of the piece. During the conversation the narrator shows a clear disdain as he distances himself from the young man, noting that he smelled and seemed dirty, while they talk about Sonny's arrest (19). When the friend asks the narrator what he would do about Sonny, the narrator responds, "Look. I haven't seen Sonny for over a year, I'm not sure I'm going to do anything. Anyway, what the hell can I do?" (20). This response shows that at this point, he feels no connection, responsibility, or warmth for his younger brother. Sonny's drug arrest is indicative of the drugs and crime associated with Black culture that the narrator has been attempting to distance himself from, so he claims he is powerless to help leaving his brother to his own fate.

Stage two of Helms' model, the Encounter, is the metaphorical rug being pulled out from under the individual's feet. This occurs when a person encounters an event that shatters their current perception of themselves, precipitating a paradigm shift in the individual. Carter and Goodwin note that at this point, "the energy used to search for a new identity... leads to the next level of racial identity" (309). The death of his two-year-old daughter, Grace, was the narrator's impetus to embark on this journey. True to his word, the narrator had made no attempt to contact his brother until the death of his daughter from polio humbled the narrator into finally reaching out to his brother the night that she was buried, saying, "My trouble made his real" (37). It was not until he had hit rock bottom that the narrator was able to identify with the plight of people who struggle and then began to take steps to reconcile with his brother and, consequently, the Black community.

At the end of the story, Sonny invites his older brother to watch him play at a jazz club and thus initiates the Immersion stage. In this phase a person begins to forge a new way of thinking by attending events and participating in activities that affirm and support their African American identity such as clubs, and political organizations (Carter and Goodwin, 309). Seated in a dark corner as Sonny and the rest of his jazz quartet played, the narrator finally learns what it means to be a part of a community as he is fully immersed in Black culture represented by the Blues. During the band's cover of "Am I Blue," Sonny's solo is so poignant that it causes the narrator to-

have an epiphany, of which he describes:

I seemed to hear with what burning he had made it his, with what burning we had yet to make it ours, how we could cease lamenting. Freedom lurked around us and I understood, at last, that he could help us to be free if we would listen, that we would never be free until we did... (47).

Being fully baptized in the spirit of the music, which represents Black culture, the narrator begins to understand that he no longer has to bear his burdens alone. Hearing Sonny's improvised solo in which he owned and released his demons was a green light for the narrator and everyone in the club to do the same and acknowledge the suffering that they have endured. At this point the narrator, feeling secure among his people, allowed himself to shed tears for the loss of his daughter and be freed of the burden of grief.

Jazz and the blues are the major metaphor in the story symbolizing Black community (Reilly 56). Jazz is an ideal metaphor to use for this because it requires musicians to maintain harmony in the progression of chords while still encouraging individualism and improvisation from every member of the band (Albert 179), while the Blues is a genre that anyone can relate to since everyone goes through struggles and heartbreak. During the final scene in the Jazz club, the narrator comes to understand that the people in the club and band are as much Sonny's family as he is. The big brother of the group is the bandleader named Creole, whose name is a nod to former slaves who had settled in West Africa and whose descendants became Creoles of Sierra Leone (Collins 176). The narrator observes that it is Creole who eases Sonny into his first show back and guides him through a rough first set, as an older brother should. However, once Sonny got into the rhythm during the second song of the set, "Am I Blue," Creole gives Sonny full reign acknowledging he "was part of the family again" (46). During this final set, "when Sonny plays the blues at the end of the story, it is the black heritage reflected in the blues that impresses itself upon Sonny's brother and brings him back into the community of his black brothers and sisters" (Albert 179).

The music that the narrator didn't understand early in the story now causes him to see visions of his mother and physically feel the pain she experienced in life; it also allows him to see the road where his mother told him that his uncle died as the narrator's father helplessly watched (47,48). It is at this moment that the blinders came off and the narrator begins to understand his community, the music, and his little brother as Sonny had finally found a voice where he could communicate with his older brother.

In West Africa, Akan philosophical tradition maintains the idea of *Sankofa* which is “a necessary journey into the past of our indigenous culture so that we can march into the future with confidence and with a sense of commitment to our cultural heritage.” (Temple 138). The image of a bird whose head is twisted backwards is the Adinkra communicator for *Sankofa*, which loosely translates to “return to your past or “go back and get it” (Temple 127, 141). Baldwin makes it painfully apparent that “Sonny’s Blues” is the story of the narrator’s *Sankofa* journey when he compares the narrator’s upbringing in Harlem to animals caught in a trap, saying:

Some escaped the trap, most didn’t. Those who got out always left something of themselves behind, as some animals amputate a leg and leave it in the trap. It might be said, perhaps, that I had escaped, after all, I was a schoolteacher; or that Sonny had, he hadn’t lived in Harlem for years. Yet, as the cab moved uptown... it came to me that what we both were seeking through our separate cab windows was that part of ourselves, which had been left behind. It’s always at the hour of trouble and confrontation that the missing member aches. (24,25)

The narrator refers to Harlem, his home since birth, as “the trap” here, and he has been trying to distance himself with everything associated with that place. Yet, by doing so he also alienated himself from his family and community. It is in this car ride back to Harlem, finally reunited with his brother, when the narrator begins his journey back home to find what he left behind- a sense of family, community, and belonging. From the beginning of the story, the author shows how the brothers have to reconcile a part of their past in order for them to move towards their future. As Goldman observes, there are a series of flashbacks in which the narrator “recalls events that fuse past, present, and future,” (Goldman 231), such as when the narrator says that the music in the club, “brought something else back to me and carried me past it, I saw my little girl again and felt Isabel’s tears again, and I felt my own tears begin to rise.” (48). Here the idea of *Sankofa* is perfectly illustrated because until this moment the narrator had not even allowed himself to mourn the loss of his daughter to polio, but hearing Sonny’s blues allowed him to return to that place of hurt and once he reconciled those emotions he felt as if he was able to move forward in life.

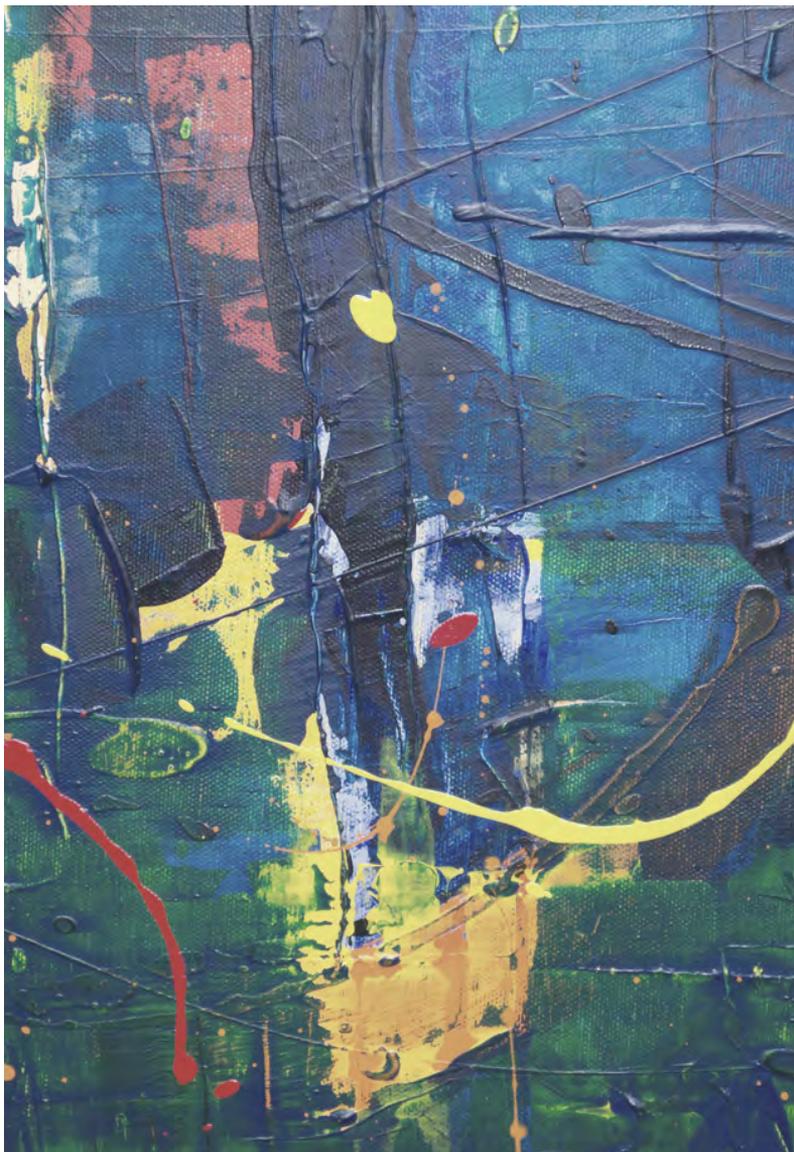
In conclusion, James Baldwin's "Sonny's Blues" emphasizes community development in order to facilitate the formation of a personal and racial identity. It is only when a person feels that they have the love and support of a group of people that they can fully grow and move forward with their lives. The article referenced in the beginning best sums up this sentiment with an excerpt from African philosopher, John Mbiti's book *African Religions and Philosophy* where he sums up the African sense of self in the phrase "I am because we are, and since we are, therefore I am."

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Fracking: Lucrative Operations that Make the Planet Bleed

By: Juan Sebastian Poveda Correa

Is \$257 billion enough to pay for damaging our environment? In the eager attempt of humans to obtain energy from fossil fuels (such as coal, oil, and natural gas), many advances and inventions have been made. Humans have been trying to extract these fuels in any possible way; one of the most common ways is called “Hydraulic Fracturing” more commonly known as “fracking”. It is the most efficient and profitable technique for corporations, but it is not necessarily the most environmentally friendly. Companies are benefiting a lot from this method, but they are hurting the environment in so many ways. This brings up the question: do companies that use fracking have to focus only on profitability, or do they have a responsibility to the environment as well? Companies have a responsibility not only to its shareholders, but to its stakeholders and an even more important one to the environment. In this paper, I will discuss that responsibility previously mentioned. First, I will start by giving a small introduction to fossil fuels. Secondly, I will discuss the responsibility that companies have to its stakeholders and the environment. Thirdly, I will mention how a company that focuses only on profit could harm everyone, discussing some of the policies and regulations, and I will support this by using a recent example that occurred in Colombia. Finally, I will present my conclusion.

Fossil fuels are formed by the decomposition of organisms without the presence of oxygen, but this process takes millions of years. That is the reason why fossil fuels are considered a non-renewable energy source. It wasn't until the 1800s that humans learned to burn fossil fuels to transform them into energy, and we have been using them ever since. Hydraulic fracturing, or “hydrofracking,” or simply “fracking,” is a technique that consists of breaking the rocks underneath the surface that contains fossil fuels with millions of gallons of pressurized liquid (water, sand and some chemicals). This process takes place from 5,000 to 20,000 feet deep; Alex Prud'homme, an American author and journalist, in his book *Hydrofracking: What Everyone Needs to Know*, mentioned, “The average depth is 7,500 feet deep, ... equivalent to six Empire State Buildings or more than 25 football fields stacked up end to end” (33). There are lots of benefits this technique provides,

but injecting chemicals to the earth and such depth must have some environmental issues.

Companies have a responsibility to their shareholders, who, as the name implies, are people who own shares of stock of a company, making them owners of a certain percentage of the company. The shareholders invested some capital into the company, so they want their company to do well in order to obtain a return on their investment. It is a company's responsibility to stay profitable in order to keep its shareholders; otherwise, they would invest their money in a different company. In the case of the mining industry, fracking was the solution to keep the shareholders happy, as mentioned by David E. Newton in his book *Fracking*, the use of fracking has been responsible for, "bringing enormous profits to the industry" (112). In 2014, the profit realized for oil and gas companies operating in the U.S. and Canada was \$257 billion, according to Oil Change International. The use of fracking allows companies to extract fuels from places where it was not possible to do so before, increasing dramatically the amount extracted. Take the case of crude oil production; according to the U.S. Energy Information Administration (EIA), on February 2018 the average U.S. crude oil production was 10,264 thousand barrels per day, while 8 years ago, in February 2010 the average production was 5,546 thousand barrels per day. In 8 years the production number doubled. The use of fracking to obtain fossil fuels brings great benefits to companies, helping them to stay profitable and to fulfill their responsibility to their shareholders.

Indeed, the use of fracking has helped companies to fulfill their responsibility to its shareholders, but what about a company's responsibility to its stakeholders? The Merriam-Webster dictionary defines stakeholder as, "one who is involved in or affected by a course of action". In other words, a stakeholder is a person who is affected somehow by a company's performance. Examples of stakeholders are the employees, suppliers and customers. The steady increase of fracking operations within the U.S. requires more personnel to work in these companies, generating a great amount of new job opportunities to Americans; this production increment is reflected in the market with lower prices for its customers. In order to produce more, additional equipment and other necessities are required, and this benefits suppliers. The state benefits from the severance taxes (these taxes are charged to the extraction of nonrenewable resources). Therefore, the constant increases in mining activities (like fracking) increment the severance tax revenue for the state. The use of fracking has helped the U.S.

to increase the use of domestic energy, drastically reducing the dependence on other countries. Charles Davis, a professor in the department of political science at Colorado State University, asserts that “Greater industry use of fracking offers an abundant source of domestic energy, ... economic development gains such as the creation of infrastructure, well-paying jobs, revenues and taxes for affected local governments” (63). This means that fracking not only brings benefits to the company that extracts the fossil-fuel, but to the whole mining industry: From the operating company, to its consumers, and the U.S. in general.

In short, it seems that almost everyone is happy with fracking operations; it benefits shareholders and stakeholders—but what about a company’s responsibility to the environment? In order to discuss this, it is necessary to understand the possible risks and impacts of fracking. The great magnitude of this technique has an enormous impact on the environment. Dr. Qingmin Meng, an assistant professor in the department of geosciences at the Mississippi State University, argues that “Centering on the fracking, a total environmental study paradigm is developed, and a total of 26 fields across anthroposphere, atmosphere, lithosphere, hydrosphere, and biosphere are impacted by and associated with fracking” (955). This means that essentially every single part of the planet is being affected. Big trucks mobilizing to and from the drilling sites (i.e., fracking pads), the excavation and all the equipment, and all the noise pollution that fracking operations brings are producing a big deforestation and changes in nature. All the species that are part of those environments are affected; their habitats are being replaced with fracking pads. Also, the big pressure used to break the rocks at a great depth could affect seismic activity, which could generate earthquakes. Fracking operations emit large amounts of methane into the atmosphere, affecting on a large scale the environment (global warming). Water contamination is another fact to consider. Since fracking occurs at such depth it is difficult to know if there might be some water source nearby, and it could be polluted by the chemicals or the fossil-fuel released. Some studies have found “methane in shallow water wells in the vicinity of deep shale gas wells” (Fitzgerald 1357). This could have a potential harm to water sources, not to mention that the pressurized liquid used to break the rocks “needs about 2-20 million gal of water” (Meng, 955), and the residual liquid that comes out (i.e., flowback) contains some radioactive components, making the disposal dangerous. In fact, water contamination is one of the greatest impacts of fracking on the environment.

In brief, the effects that fracking seems to have on the environment are greater than its benefits. If fracking affects the environment, it means that it affects the whole world; this makes a company's responsibility to the environment really important, even more than its responsibility to its shareholders. If a company focuses only on profitability and fails to meet its responsibility to the environment, it would be harming everyone, including the company itself, since everything that happens to the environment affects everyone in it. The problem is that proving the negative impacts that fracking has in its totality is hard; since fracking occurs at great depths, "verification is costly if not impossible" (Fitzgerald 1356). Thus, it is hard to prove the total impact of fracking in the environment; making it difficult to demand more drastic measures to prevent the possible effects. Some of the accidents that are more obvious, such as the pollution due to leaks, are addressed with stricter policies, but "definitive evidence of damages due to fracturing and not the result of other accidents associated with the development process have been difficult to obtain" (Fitzgerald 1356). If those impacts are not possible to demonstrate, the damages to the environment are going to keep increasing, and by the time they become more obvious or easy to demonstrate, it is going to be too late.

Unfortunately, fracking was not taken seriously until a few years ago. An example of this is that companies used to hide some part of the chemicals that they use during the fracking process, saying that it was a "trade secret". The public demanded that companies disclose that information, in order to have a better understanding of what is being injected to the earth and what could probably cause some harm to the community. However, companies only disclosed some of the chemicals used, hiding the others. Also, the flowback was not being disposed of correctly. After a few years of investigation, a few policies and regulations that seek to mitigate environmental impacts of fracking were imposed under the Obama administration. One of those policies is that companies need to publicly disclose all the chemicals used on the pressurized liquid that is being injected to the earth, and a second is that the flowback needs to be carefully treated. Another policy is that the cement used to seal the wells needs to be carefully tested to meet the requirements, in order to avoid leakages. These are just a few steps to a safer fracking that should be part of a company's responsibility to the environment, because "ultimately the safety and quality of a well is dependent on the operator" (Prud'homme 70). Therefore, companies should be committed to meet their responsibility to the -

environment by following a few steps to a safer fracking. Companies can still be profitable and have a good environmental response, as mentioned by *The Washington Post*: “the Obama administration insisted that the rules would pose little challenge to the industry, because compliance costs would be extremely cheap – a relatively tiny \$11,400 per well”. This is a small price to pay to help the environment, and companies would be fulfilling their responsibility as well.

Thus, it is important that companies are committed to their responsibility to the environment, in order to avoid irreparable damages. Because when a company focuses more on making profit and leaves aside their responsibility to the environment, it harms everyone. For example, about two months ago, there was a petroleum leak in one of the fracking pads in Barrancabermeja, Colombia. This was the worse environmental catastrophe in Colombia’s history; it took the company (Ecopetrol) almost a month to contain the leak. A leak that covered about 15 miles of rivers and forests and killed 2,470 species of animals (Semana 2018). The investigations are still in progress, but it seems to be pointing towards a serious mistake in the closing of a well. In addition, the company was not prepared to deal with a leak this big, which is why it took them about a month to finally contain it all. Hence, what happened in Colombia was a clear example of the outcome when a company does not take its responsibility to the environment seriously. That leak lead to irreparable damages to the environment.

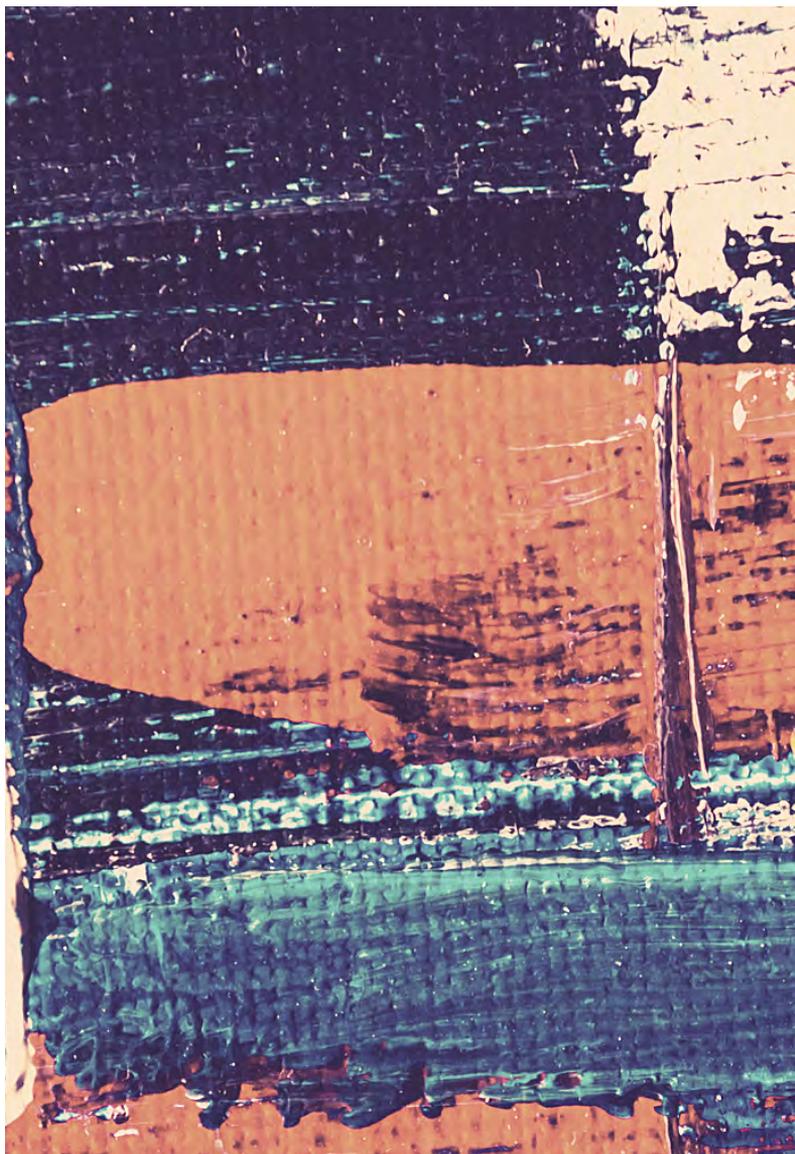
To conclude, companies that use fracking have a responsibility to their shareholders: They need to remain profitable. A company also has a responsibility with its stakeholders, since they are all affected by the company’s actions. But more importantly, a company has a responsibility to the environment; it is indeed the most important one, since what affects the environment affects the whole world. That is the reason why a company has to pay special attention to the environment, in order to do more good than harm, making its way to safer fracking. Not only companies, but every single person around the world has a responsibility to the environment. It is ours to use, but also ours to protect.

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A Green Method for Preparation of Self-Organized Organic Nanoparticles of a Free Base Tetrakis(pentafluorophenyl)porphyrin

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Abstract

Supramolecular systems that include their self-assembled and self-organized systems are promising components of advanced materials because of their rich photochemistry, stability, and proven enhanced catalytic activity. While inorganic nanoparticles are widely studied, the formation of organic nanomaterials is more recent, and porphyrinoids are at the forefront of this research. Here we present a *green eco-friendly* method to prepare a colloidal solution of a free base 5,10,15,20-tetrakis(pentafluorophenyl)porphyrin, TPPF20, using miscible host-guest solvent method. The aggregation of porphyrinoid to form colloidal solution was initially identified by opaqueness of solution and the further confirmed by UV-visible absorption spectroscopy. The broadening of strong absorption peak in the range of 380-475 nm, called Soret band and also the redder shift in low energy Q-bands is indicative of aggregation of porphyrin to form their nanoparticles solution. A simple light scattering experiment, Tyndall Effect, also proves the formation of particles (aggregation of porphyrinoid) in the colloidal solution. We have used a miscible host-guest solvents method to prepare organic nanoparticle of TPPF20 as a model of *Green Chemistry* as ~89% solvent system is water.

Introduction

Porphyryns: Porphyrins are heterogenous macrocyclic compounds with four pyrrole units joined together by methine bridges. These are an important class of organic compounds as they possess unique optical, photophysical magnetic and chemical properties that enable a wide range of applications such as in photonics, catalyst for environmental remediations, therapeutics etc.

The basic structure of a free base porphyrin is shown in figure 1a. Many porphyrins are naturally occurring; one of the best-known porphyrins is heme (iron containing porphyrin), the pigment in red blood cells and a cofactor of the protein hemoglobin. Other biologically important porphyrins include a magnesium porphyrin responsible for green pigment of plants (chlorophyll), a cobalt porphyrin, which are a common vitamin of Vitamin B12 family (cyanocobalamin) and many more. Porphyrins have been extensively studied for a wide range of other applications such as to develop sensors for environmental pollutant detection and remediation- to make components for solar cells for solar energy harvesting to photosensitizer for photodynamic therapeutic treatment of cancers.

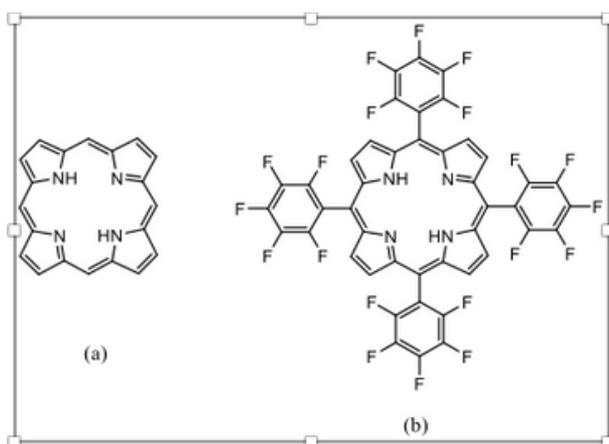


Figure 1: (a) Structure of a free base porphyrin.
(b) Structure of 5,10,15,20-Tetrakis (pentafluorophenyl) porphyrin, TPPF20.

Supramolecule: A supramolecular system is formed when the small building block molecules interact with each other either by non-specific interactions such as dispersion forces, dipole-dipole interactions or by specific interactions such as coordinate bond, hydrogen bonding are the foundations on which life builds complex functional materials. Supramolecular systems can be categorized as: (a) self-assembled systems in which building blocks are arranged in an ordered fashion is intolerant of errors/defects, whereas (b) self-organized systems results in formation of non-discrete systems that are dynamic in nature and are more tolerant of errors/defects. [1, 2] Porphyrinoids are ideal organic components for material chemistry—especially photonics, sensors, and molecular sieves—because they are remarkably robust under a variety of conditions. Also, the porphyrin core-

can be easily bind with a wide range of metal atoms via coordinate bond further helps to finetune their optical as well as redox properties. Nature exploits these optoelectronic properties of porphyrin supramolecular systems to harvest solar energy, transfer electrons, and as redox catalysts. [2] The properties of many nanoscaled particles are substantially different than those of bulk materials composed of the same atoms or molecules.

Organic Nanoparticles: The synthesis and applications of inorganic nano-materials composed of metals, metal oxides, ceramics etc. have been well reviewed in literature, [3, 4] but studies on the nanoparticles composed of organic molecules, other than lipids, are more recent [5-7] and porphyrinoids are at the forefront of this research. [8, 9] The inorganic nanoparticles are more robust and structurally static compare to organic nanoparticles that are dynamic in nature as the forces that held the organic molecules to form organic nanoparticles are week intermolecular forces and can easily adapt to the environmental conditions. [10] The methods used for the preparation of both inorganic as well as organic nanomaterials involves the use of either toxic metals, halogenated solvents, pH of reaction medium and other vigorous conditions such as high temperature, use of lasers. In addition to strong conditions, these methods also require heavy instrumentation that results in high cost. These all limits the development of advanced materials for their applications for modern society.[4] Therefore, there is a strong need to develop a green eco-friendly and cost-effective method to prepare nanomaterial for their applications.

Here, we are presenting a simple, quick and eco-friendly method to prepare organic nanoparticles of a free base 5,10,15,20 tetrakis(pentafluorophenyl)porphyrin, TPPF20, by mixing host-guest solvent method reported earlier by Drain and coworkers [8,9]. The structure of TPPF20 is shown in figure 1b. The formation of colloidal nanoparticles was confirmed by opaqueness of the solution, absorption spectra and also by scattering of light, that indicates the presence of small particles in solution.

Experimental Details:

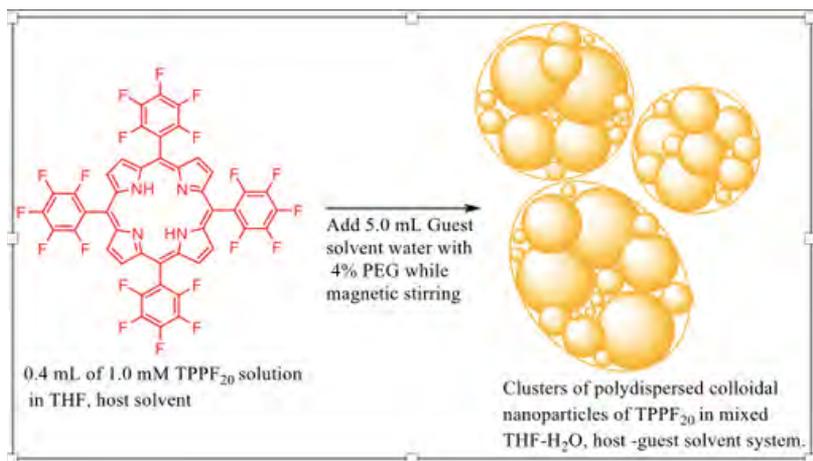
Materials and Instrumentation: 5,10,15,20-tetrakis(pentafluorophenyl)porphyrin (TPPF20), Tetrahydrofuran (THF) and polyethyleneglycol monomethylether (PEG164) were purchased from Sigma Aldrich Chemicals Co. Electronic spectra were recorded on Cary Bio-3 UV/Vis spectrophotometer.

Preparation of Colloidal solution of organic nanoparticles (ONPs): 1 mM stock solution of TPPF₂₀ was prepared in THF. Then 0.4 mL portion of stock solution of TPPF₂₀ in THF was mixed with 0.2 mL of polyethylene glycol, PEG164 in a 10 mL vial at room temperature. The solution was magnetically stirred. To this mixture solution then 5.0 mL of distilled water was added while magnetic stirring over a time period of 60 seconds and then the solution was further stirred under the same environmental conditions for another 2-3 minutes.[9, 11]

UV-visible Absorption Spectroscopy: The UV-visible absorption spectra of the stock solution of TPPF₂₀ in THF and the corresponding nanoparticles in water were recorded using baseline with THF and water respectively.

Results and Discussion:

Preparation of ONPs of TPPF₂₀: A colloidal nanoparticle solution of a hydrophobic porphyrin TPPF₂₀ is prepared by adding water to a solution of TPPF₂₀ in THF, mixing host-guest solvent method at room temperature. A small amount of PEG as stabilizer was added to the above mixture solution to increase the stability of the nanoparticles formed. The method of miscible host-guest solvent using a variety of host solvents such as THF, DMF, DMSO CH₃OH, and CH₃CN has already been successfully explored for a variety of porphyrinoids [8] and their related tetrapyrrole macrocycles. A schematic representation that shows the formation of clusters of colloidal nanoparticles in solution is shown in scheme 1.



Scheme 1: Schematic representation of formation of aggregates of TPPF₂₀ porphyrin in miscible host-guest solvent.

The formation of ONPs of TPPF20, their size and stability depend on both: a) the nature of the intermolecular forces between TPPF20, host solvent THF, Guest solvent water and the polyethylene glycol stabilizer, and b) the mode of mixing-magnetic stirring versus manual mixing. These factors also control the organization of the porphyrins into nanoaggregates. The addition of guest solvent water to the solution of porphyrin in host THF/PEG while magnetic stirring results into the formation of colloidal solution of TPPF20, figure 2. The presence of stabilizer, PEG plays a crucial role to determine the stability of the nanoparticles formed. Manual mixing of solution of porphyrin in THF with water in the absence of PEG leads to the formation of precipitate, figure 2.



Figure 2: A true solution of TPPF20 in THF (left), colloidal ONP solution in miscible THF-water solvents (center) and the agglomeration of TPPF20 to form its precipitate (brown precipitate at the bottom of test tube) in the absence of PEG stabilizer (right).

Characterization of ONP:

(a) *Visual confirmation:* A clear transparent solution of TPPF20 in THF was compared with its colloidal solution in water. The opaqueness of the colloidal solution is indicative of the presence of particles in the colloidal solution. Light always travels in a straight path; when light is deflected by the particles in the colloidal solution confirmed by its changed path, indicates that the size of particles must be big enough to block the vision, simultaneously the particles are small enough that they cannot be seen through the naked eye, figure 2.

(b) *Light scattering by ONPs*: One traditional well-known characteristic of light is that it always travels in a straight path without any deflection. When a beam of light from a laser light source passed through the true solution of porphyrin in THF it passes without any scattering clearly indicates the dissolved porphyrin particles in solution, figure 3(left). However, a small scattering can be seen in the left image of figure 3 is due to the scattering of light by glass, but not by the solution. On the other hand, when a beam of light from the same light source passes through the colloidal nanoparticles solution the entire test tube glows with the emission of pinkish-red light, indicates a strong scattering of light, figure 3(right). This clearly shows that the colloidal solution must have particles that are big enough to deflect the path of the light. The multiple light scattering in the vicinity of the solution results in the strong fluorescence by the tube containing colloidal solution. This scattering of light by the colloidal nanoparticles solution is known as Tyndall effect.



Figure 3: A beam of light passes straight through true solution of TPPF20 with NO scattering of light. NOTE: A small scattering is observed because of glass (left). Scattering of light when it passes through the colloidal solution of TPPF20 indicated by strong illumination (right).

(c) *UV-visible absorption spectra*: Absorption spectra of both colloidal nanoparticles solution in water and true solution of TPPF20 in THF were recorded and compared. Figure 4 shows the absorption spectra of TPPF20 nanoparticles and of its component molecule in THF. The component TPPF20 molecule in THF shows a sharp narrow absorption band, Soret band at 406 nm along with four low energy Q-bands in the range of 485-650 nm. A broadening of the Soret Band was observed for the colloidal nanoparticle solution. Also, both the Soret band peak and the four low -

energy Q-bands shifter towards the redder end of the electromagnetic spectrum is an indicative of the agglomeration of the porphyrins into its colloidal solution. A detailed list of absorption peaks for both true solution of TPPF20 and its colloidal nanoparticles solution are listed in table 1.

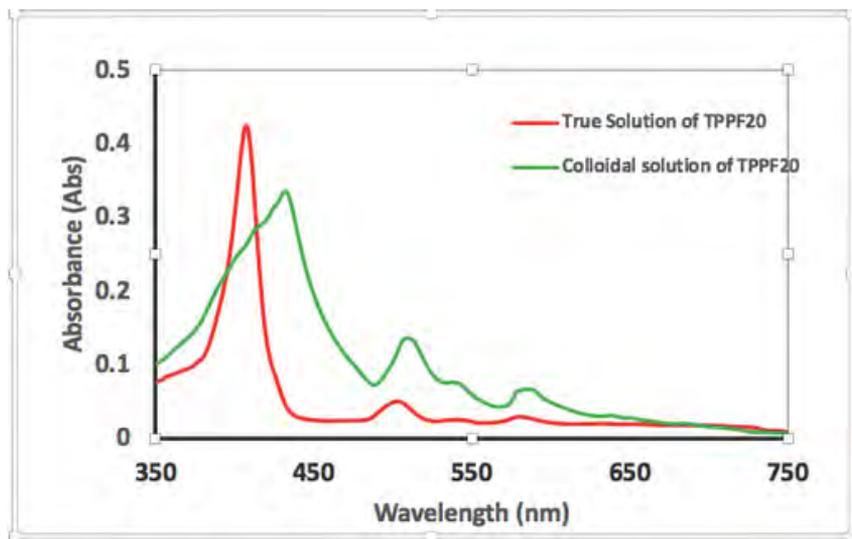


Figure 4: UV-visible absorption spectra of true solution of TPPF20 in THF (red) and its colloidal nanoparticles (ONPs) solution in THF-H₂O mixed solvent system (green).

Table1: Absorption band peaks that includes for TPPF₂₀ in THF and its nanoparticles solution in THF-water mixed solvent.

	Absorption Peaks	
	Soret absorption band (nm)	Low energy Q-bands (nm)
TPPF ₂₀ in THF	406	505, 542, 578, 632
Colloidal nanoparticles solution in THF-water mixed solvent	430	512, 547, 583, 644

Structural planarity of porphyrins macrocycles allows them to interact via two different ways to form their aggregates: edge-to-edge interaction leads to the formation of J-type aggregates and/or face-to face interaction also called π -stacking leads to the formation of H-type aggregates. Both J and H- types of aggregates possess different spectral features. In general, the formation of J-type aggregates were confirmed by the redder shift of the low energy Q-bands and/or also by the appearance of a shoulder on the red end of the Soret band, whereas for H-type of aggregates these above mentioned changes in the absorption band appears at the blue end of the electromagnetic spectrum. [9, 12] A small shoulder at 414 nm towards the blue end clearly indicates the formation of H-aggregates in the colloidal nanoparticle solution of TPPF20. However, both the splitted Soret band together with the broadened and red-shifted Q-bands in the optical spectra suggest the presence of both types of aggregates in ONPs solution.

Conclusions:

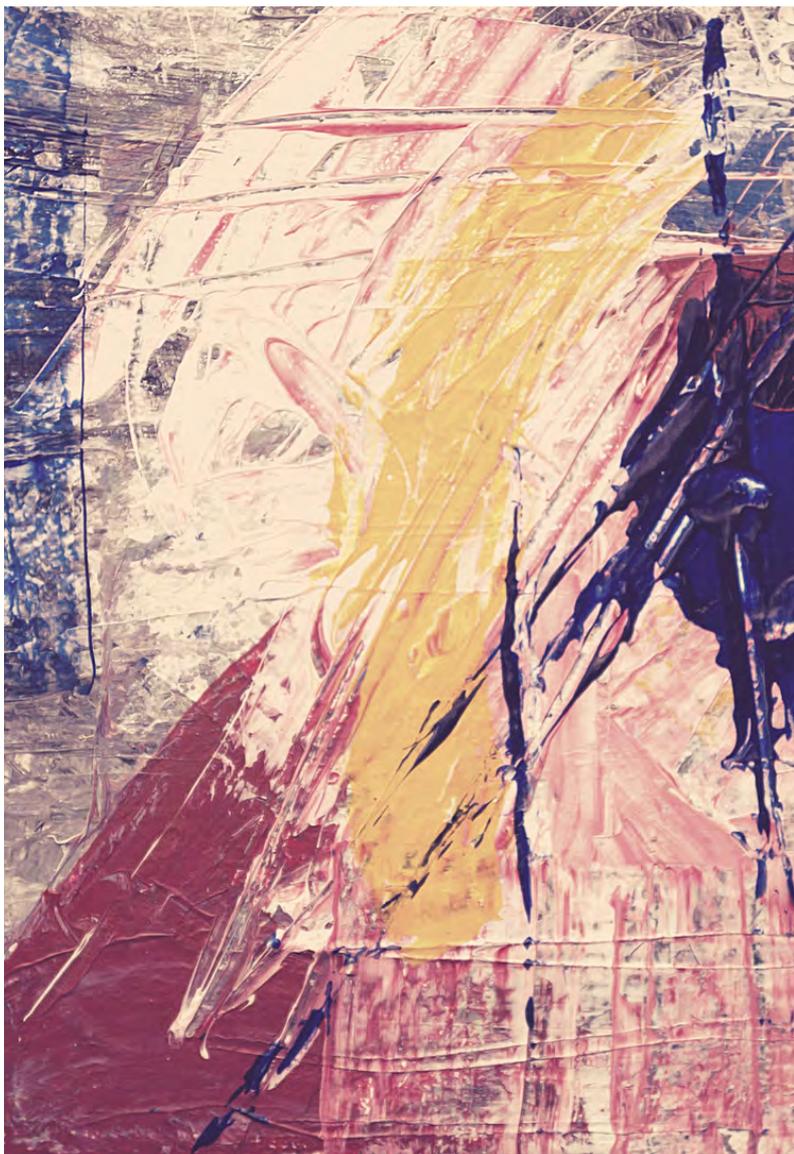
In conclusion, we have used a previously reported [9,11] green eco-friendly method for the preparation of colloidal nanoparticles of TPPF20 a free base porphyrin without using high energy and heavy instrumentation. The significance of this method lies in its simplicity and low-cost instrumentation that makes this method ideal to be used both in academia and industrially for other component molecules. The stability of the nanoparticles depends upon the presence of stabilizer. In the absence of stabilizer porphyrin particles further aggregates in THF-water solvent system to form its precipitate. The broadened, splitted and red shifted Soret band along with the low energy Q-bands in the optical spectra suggest both J- and H- types of interactions in the nanoparticles. This method of miscible host-guest solvent to prepare ONPs of TPPF20 represents a model of Green Chemistry as ~89% solvent in the colloidal solution is water.

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Social Responsibility

By: Fawazah Saleh

According to Klaus Schwab, the German economist, “Corporate social responsibility is measured in terms of business improving conditions for their employees, shareholders, communities, and environment” (Schwab). In other words, social responsibility is when companies take into consideration what is good for society and act based on that. The main purpose of this paper is to argue that corporations must take into consideration social responsibility while conducting business because many of today’s environmental and social problems are caused because of corporations’ irresponsible behaviors such as the pollution caused by manufacturing. Furthermore, it is a valid way to avoid legal prosecution and additional expenses. Finally, it attracts customers who value social responsibility and opens a new source of financing from interested investors. For all these reasons, corporations should consider social responsibility when conducting their business.

From the perspective of some businesspeople, the corporation’s primary obligation is to generate profit for its shareholders. They argue that a corporation meets its social responsibility by paying taxes on its net income on a periodic basis. Another reason why some businesspeople will emphasize the financial bottom line rather than social responsibility is because they believe that corporations serve the community in an indirect way. The article “To Be Good Citizens, Report Says, Companies Should Just Focus on Bottom Line” by Stephanie Strom, discusses how corporations can benefit society by simply pursuing profit and cites Daniel Altman, a consultant at Dalberg Global Development Advisors, who states that “Using a single bottom line allows companies to create social benefits in the most efficient way while continuing to maximize profits” (1). Jonathan Berman, another Dalberg’s consultant, argues that, “The real social value comes overwhelmingly from what companies do through their core business, the skills and supply chains built up around them, and then the revenue that comes into government as a result of their profitability” (1). To illustrate, the single bottom line focuses on the economic bottom line that is generating profit. The bottom line advocates argue that corporations should center their attention on how to maximize profit at very low costs. They believe that while they are pursuing profitability, corporations are enriching society because they provide goods and services that satisfy society’s needs. In addition,

corporations will provide job opportunities and generate revenues which benefit the government and the economy in general. These are some of the reasons why some businesspeople argue that seeking profitability should be the corporations' main goal.

Although some people believe that profitability should be corporations' main motivation, corporations should consider social responsibility to avoid expenses that occurs when they act irresponsibly or unethically. It is true, however, that corporations can act unethically but not interfere with the law which supports the fact that some corporations exhibit unethical conduct and still flourish. Whereas many businesspeople argue that focusing on serving social good will always increase the company's expenses, this might not be true in some cases. Sometimes, corporations that focus only on generating profit may engage in improper or questionable activities which might cost the company more when the public becomes aware. In my point of view, corporations can avoid such dilemmas and expenses associated with these irresponsible behaviors by adopting social responsibility. When corporations fulfill their obligations toward society in general by ensuring that their businesses do not interfere with public and environmental safety, they are more likely to avoid additional costs and losses. There were many real-world situations where focusing on the bottom line only and ignoring social responsibility have caused huge losses to a company. Consumers have won many product liability lawsuits against corporations that do not value social safety when distributing defective and unreliable products. General Motors (GM), for example, was ordered to pay a personal injury award of \$4.9 billion to the Anderson family when their car burned causing them huge injuries (Pollack). The lawsuit claimed that GM knew that the fuel system of their Chevy Malibu cars was poorly designed, but they ignored this issue in order to avoid the recall expense. The recall expense was supposed to cost GM \$2.40 per car. Based on 41 million cars, GM's total recall expense would have been \$98.4 million. However, General Motors may have calculated that it was cheaper to ignore the fuel system issue and let people die, which cost them the compensation of \$4.9 billion. This is the problem with focusing on the bottom line only. If GM acted responsibly and paid attention to public safety rather than emphasizing profit, it would not have to endure this situation which threatened its reputation as well its financial position. GM is not the only corporation that is exposed to legal prosecution. Many corporations that cause harm to stakeholders, society, or environment are exposed to the same consequences. Incurring such expense will cause a large deduction from a company's net worth which will reflect negatively on the company's ability to pay dividends to its shareholder and its ability to meet debt obligations. Hence, pursuing social responsibility will keep a company away from legal prosecution and incurring huge fines and losses.

In addition, some corporations have negative environmental effects associated with acting irresponsibly. Chemical and medical wastes, defective products and all other hazardous waste that results from corporations'-

operations are disposed in the environment and cause enormous environmental problems. The documentary film "The Corporation" by Mark Achbar and Jennifer Abbott reveals corporate misconduct that has tremendous impact on the environment, which affects human as well. CO2 emission, clear-cuts and other chemicals are produced during the process of manufacturing goods which cause damages to the environment, especially to the atmosphere. All of these environmental problems reflect negatively on human health. In this documentary, Samuel Epstein, a professor emeritus of environmental and occupational health states that "these synthetic chemicals which have permeated our workplace, our consumer products, our air and our water produce cancer and also birth defects and some other toxic effects". This means that corporations are destroying the environment by disposing their industrial waste in the oceans and landfills which cause different types of pollutions. The pollution threatens human life as well because they contain harmful and toxic substances that cause serious disease such as cancer. If businesspeople argue that corporations are paying taxes as a cost to compensate these harms, it can be argued that paying taxes does not eliminate the fact that the world is in the face of environmental crisis that threatens life on earth. Global warming, for example, is a consequence corporations cause to the environment and cannot be solved by simply paying taxes. As a result, corporations must participate in solving such problems to eliminate them.

Furthermore, corporations' irresponsible behaviors have also negative impact on society. Sweatshops are examples of misconduct that affects people negatively. Sweatshops are workplaces where many employees are exploited to work long hours for very low wages and under harsh conditions. The main reason that corporations use sweatshops is to minimize costs associated with the process of production, so they can maximize profit. If a corporation chooses to open its factory in the United States, it will incur high expenses because the productive resources, such as labor, are comparatively expensive. However, if that company decides to open a factory in Bangladesh where there are cheap resources and few restrictions on corporations, they end up incurring lower expenses. Therefore, many companies decide to open their factories in developing countries because they have cheap resources and less restrictive laws. In addition, since developing countries often have high rates of poverty, people in these countries have no choice but to accept very low wages. Whereas sweatshops can save corporations' some operating expenses such as wages expense, they are dangerous places to work. Many employees who-

worked at sweatshops have lost their lives due to unsafe conditions. Tazreen Fashions factory fire is one of the sad occasions when 112 Bangladesh workers were killed because they were trapped inside the building when the fire broke out (Abrams). Again, ethics comes to play a significant role here as many developing countries legalize sweatshops. It is the corporations' responsibility to decide not to use sweatshop because it is unethical misconduct that threatens people's lives and detracts their right and ability to earn reasonable wages. Corporations such as Walmart were accused of ignoring workers right, which exposed them to massive boycotts. Usually, these boycotts weigh heavily on the company's reputation and ability to attract more customers, which will reflect negatively on the company's bottom line. For all these reasons, corporations must contribute in solving environmental and social problems and find methods to eliminate the problems associated with conducting business.

Besides avoiding legal prosecution, being socially responsible will attract customers who value social good. Consumers look for reliable and responsible corporations to deal with. Simultaneously, corporations that acquire consumers' trust are more likely to enhance their profitability because they are able to sell their goods and services. As a result, successful corporations must take into consideration a method to attract consumers and build a strong business relationship with them. Corporate Social Responsibility (CSR) is one of the major factors that attract customers who value social and environmental good. Researchers "have suggested that organizational identification theory may provide a solid basis for understanding how positive corporate social responsibility (CSR) generates the active support of consumers" (Marin and Ruiz 245-246). This illustrates how important it is to be socially responsible. Corporations that seem to care about their costumers and seek ways to build trust relationships with their clients are more valuable in the eye of costumers. Therefore, these corporations will be able to attract new customers and retain the ones they have which improve their reputation in society. As a result, the corporations' goods and services will rise in demand and their profitability will increase as a result.

Moreover, investors may also consider how corporations behave when deciding whether to invest in them. Investors seek to invest in reliable and credible corporations. Similarly, while investors look for responsible corporations to invest in, corporations are always seeking sources to finance their operations either by the issuance of stock or the issuance of bonds.

As a result, adopting social responsibility will be one of the strategies to attract such investors that seek credibility.

This complex debate of whether corporations should consider society and the environment has led to the establishment of what is called The Triple Bottom Line (TBL) method. It is a method that corporations adopt in order to reconcile the pursuit of profit and social responsibility obligations. TBL method evaluates the company's social, environmental and financial performance all together. This concept was first introduced by John Elkington, the founder of SustainAbility the British consultancy. As it is mentioned in the article "Triple Bottom Line," Elkington's point of view is that corporations should focus on three bottom lines: the social bottom line, which focuses on serving the community and stakeholders, such as ensuring fair treatment of employees; the environmental bottom line, which measures the corporations' impact on environment, such as taking into account environmental safety when producing goods or services; and the economic bottom line, which tracks the profit and loss account. Some corporations started to utilize the TBL method because of its positive impact on the corporations' reputation and on society in general. Tesla is one of the leading companies in the business world that adopts the TBL method to consider social and the environment interests. Tesla has been known for treating customers and employees respectfully by providing good customer service and satisfying employees' benefits. In addition, Tesla aims for environmental responsibility by introducing products that have less harmful effects on the environment such as electronic cars. At the same time, Tesla is considered one of the most successful companies in the world, which proves that adopting TBL does not reduce the chance of being profitable.

In conclusion, social and environmental wellbeing should be the mission of every individual in society, including corporations. Even though profitability is the main reason for establishing a business, corporations still have an obligation to act responsibly towards communities and the earth. If corporations adopt social responsibility, they can avoid engaging in questionable or ethical activities that may cost them. Moreover, it is a valuable way to attract customers and to open a door toward additional financial resources from interested investors. Since corporations have a hand in polluting the environment and harming society, they must take actions to eliminate the negative effects resulting from their irresponsible activities.

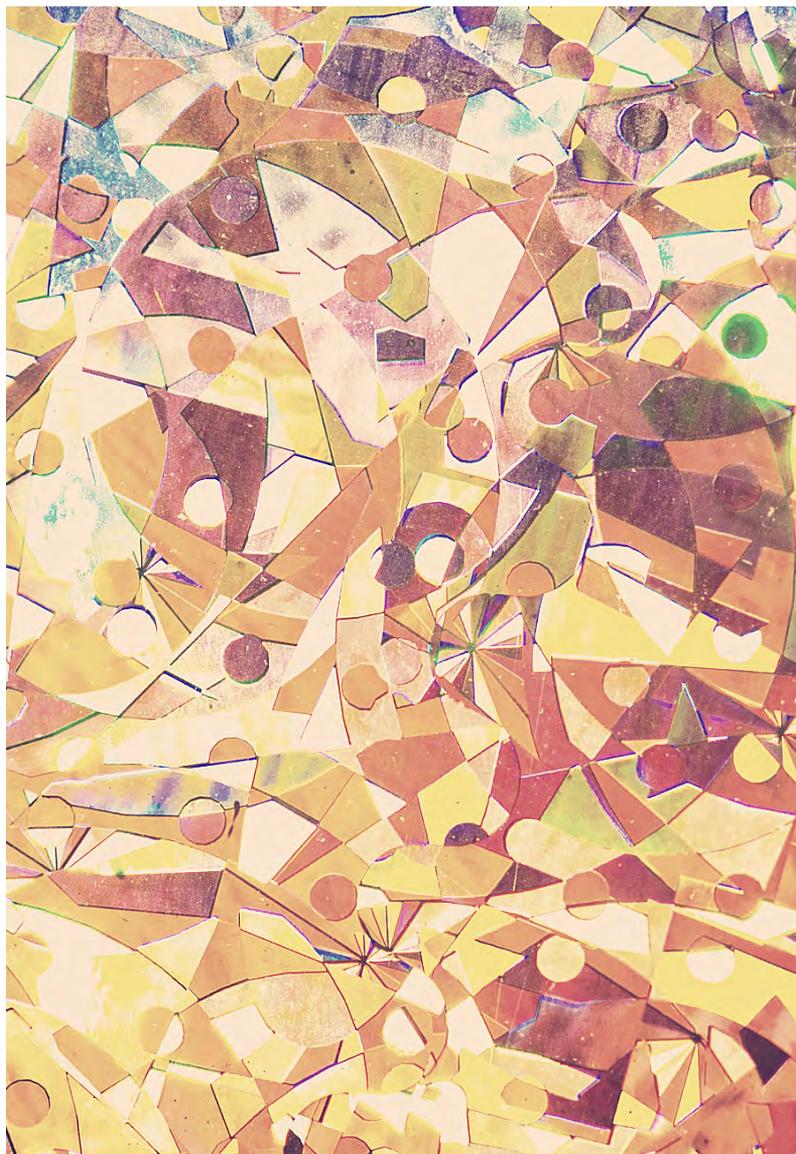


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Should The Minimum Wage Be Raised?

By: Katsiaryna Suarez

The minimum wage is the lowest legal payment employers have to pay their employees in entry-level and low- skilled jobs. Typical minimum wage job sectors usually include fast food and food preparation, cleaning and maintenance, building and construction, retail and manufacturing, and service-oriented occupations. Workers employed in these fields have observed stagnating wages for a long time. The ice was broken under the influence of the labor movement known as the “Fight for \$15.” The goal of the movement is to improve the lives of the low- wage workforce all over the country. The pay raise will happen at a different pace in each state. New York is one of the first to support justice activists’ good intentions by planning to raise the minimum wage to \$15 an hour. *The New York Times* reports, “Mr. Cuomo, after initially dismissing calls for a \$15 minimum wage in New York City, eventually embraced the idea” (McGeehan). The governor finally adopted the legislation implementing a statewide \$15 minimum wage plan as a result of which at the beginning of 2018, NYC living wages have increased to \$12-13 an hour depending on the size of the entity and its industry. The plan provides for the minimum wage of \$15 an hour for most bigger companies in New York City by the end of 2018 and for smaller ones by 2019 (McGeehan). Annual hikes are promised until the pay is gradually equalized for the rest of the state. Is this raise in minimum wages supported by fundamental and solid arguments convincing on more favorable rather than adverse effects? The topic of a minimum wage increase involves some controversy, but in view of the pros and cons based on my research, I believe that a hike in minimum wages would be equitable and warranted. Minimum wages should be raised and adjusted annually to the cost of living in order to trigger benefits not only for employees but also for business owners. The public as a whole will reap some rewards from this positive change.

From labor participants’ perspective, one of the most well-grounded and rational arguments to support a wage raise is for simple human reasons. Working full-time shouldn’t imply life in poverty. Theoretically speaking, it shouldn’t, but the reality is quite different. Unfortunately, lower- paid occupations often catch city dwellers in “poverty traps.” Joseph Vitale, a

Democratic state senator, who supports the “Fight for \$15” movement, considers an entry-level wage to be “a poverty wage” (McGeehan). *The New York Times* reports that in 2017, a typical minimum wage, for example, for a retail sales worker was \$11 an hour (Porter). Although the minimum wage has increased by \$1-2 since 2017, the current situation leaves much to be desired. \$13 an hour gives “bottom- end workers a better deal,” but this wage amount translated into an annual income of around \$25,000 based on a 40- hour week is still not enough to afford a good standard of living (Porter). And what’s worse, this pay level is not even sufficient to meet basic needs, especially in New York City where the estimated cost of living is above average. The typical city dweller’s basic financial needs include rent, gas, electricity, cell phone, food, transportation, and health insurance expenses where rent and food expenses are the primary ones incurred to cover an individual’s physiological needs for food and shelter. These expenditures coupled with our birth rights for food and shelter should be simple and easy to meet, but they are so hard to catch up with in New York City. The *New York Times* reveals the approximate rates to sustain a life here according to which “a family of four (including two adults and two young children) would require \$70,319 to live in the Bronx, \$72,160 to live in Brooklyn and more than \$98,000 to live in Lower Manhattan” (Bellafante). It becomes clear that one working adult family member is to make more than \$35,000 a year to contribute to cover the expenses of basic need, for example, to live in the Bronx while other boroughs cost even more. The wage of \$13 an hour doesn’t fulfill this requirement even if the budget is managed wisely. It should be noted that around 60% of a New Yorker’s monthly salary goes just to cover rent expense. And to make things worse, while housing prices increase annually, the sluggish minimum wage is progressively devalued due to inflation. It’s evident that such workers can’t cope with the hardships imposed by low wages alone, and, as a result, they have to rely on government assistance.

There is thus another clear argument in favor of increasing the minimum wage. Low- wage workers shouldn’t be dependent on public assistance on such a scale, and taxpayers should be exempted from liability to subsidize low- wage industries. The highest percentage of those who rely on public assistance is recorded among fast-food workers, followed by home health care and child care ones (Cohen).). All these underpaid individuals are striving to make ends meet and have to lean on all kinds of public programs, such as the Supplemental Nutritional Assistance Program (SNAP), known as

food stamps, the Temporary Aid to Needy Families program (TANF), Medicaid, child care subsidies, and subsidized housing. “As a result, taxpayers are providing not only support to the poor but also, in effect, a huge subsidy for employers of low-wage workers, from giants like McDonald’s and Walmart to mom-and-pop businesses” (Cohen). Large profitable corporations as well as small businesses simply avoid paying decent wages to their employees, and, as a consequence, this responsibility shifts to the public. The strong desire for a radical change is due to the fact that, on the one hand, higher minimum wages will make it possible for a poor citizen to meet essential living costs including “such staples of modern life as a cellphone to keep in touch with work and her children and a home Internet connection to allow her children to do their homework” (Cohen). On the other hand, the public will have fewer costs imposed. “State and federal governments spend more than \$150 billion a year on four key antipoverty programs used by working families: Medicaid, Temporary Assistance for Needy Families, food stamps and the earned-income tax credit” (Cohen). Higher minimum wages will decrease government expenses and result in lower taxes for other Americans.

Even though that may be true, there is also an opposing argument according to which a wage raise will have some negative impacts for low-wage workers. One of them is the fact that a wage hike can lead to some reduction in employees’ working hours or more substitution of human labor with automatic machines: “The University of Washington researchers found that the minimum-wage increase resulted in higher wages, but also a significant reduction in the working hours of low wage earners” (Sheiber). It indicates that employees will have fewer hours to work. Admittedly, in the modern economy, human labor can sometimes be replaced by automation. For example, the fast food industry is replacing cashiers with self-service kiosks. Airports are successfully utilizing robots acting as information guides as well as performing cleaning duties. Some other companies outsource their business process to developing countries where the labor costs are much cheaper. Roboticization and globalization are considered to be inevitable outcomes of higher minimum wages. Such low-wage workers are consequently more likely to be left unemployed. They will be deprived of any means of sustenance, and it will result in even more poverty. It’s common knowledge that even a month without a job in New York City can make city dwellers fall behind to pay their household and medical bills. On the other hand, a \$15 minimum wage introduced in Seattle a few years ago had “no discernible effect on employment” (Sheiber). For example, Angela Stowell,

an owner and the chief executive of Ethan Stowell Restaurants in Seattle, claims that neither her restaurant group nor other restaurateurs whom she knows have reduced hiring due to a wage raise (Sheiber). A Seattle example proves that higher minimum wages won't inevitably require downsizing, reduced working hours, new recruitment, and growing unemployment.

Although unemployment concerns are reasonable, they are less important in comparison with growing income inequality America has to face as a result of stagnating minimum wages. The research shows that America has been left behind by some developed countries in paying high minimum wages, and hence it makes the gap between low-wage and middle-wage workers impossible to narrow. The Financial Times reports that "governments in many developed countries are turning to minimum wage policies as they try to deal with inequality and anemic wage growth" (O'Connor). Many developed countries including France, Australia, Denmark, and Germany are trying to propose a faster and steadier annual increase in minimum wages (O'Connor). Their main goal is to cover increases in the minimum cost of living and at the same time to overcome the gap of income inequality. Furthermore, higher minimum wages will help to break the stereotype according to which minimum wage jobs are "the work of the lower class" (Porter). In the United States, minority groups are, unfortunately, the ones who have to carry the stigma of the lower class. For example, people of color are more likely to be employed at McDonald's, Burger King, Walmart, Target, Marshalls, and CVS. Higher minimum wages will serve as an indication that minority groups are not excluded from society and protected by a government that takes action to combat racial injustice. They need to know that their hard work is highly appreciated to give them more confidence as equal and worthy citizens.

Opponents of higher minimum wages also claim that a wage raise can create some direct adverse effects for businesses as well. They build their arguments based on a Seattle example. Although Ethan Stowell Restaurants haven't cut back on hiring, Stowell says that the chain "has increased some menu prices and instituted a 20 percent service fee" (Scheiber). A Seattle scenario shows that a \$15 minimum wage has spurred inflation by raising the prices of goods and services to cover the higher labor costs. When operating expenses go up, business owners will have to push up prices to cover these expenses, thereby stimulating inflation which is considered to be an undesirable consequence of higher minimum wages. Higher prices can reduce

consumption, and, accordingly, business revenues will decline. In the worst case, the revenue decline will lead to a lack of profitability and the company going out of business.

Even though companies' concerns are well justified, business owners sometimes underestimate a hike in minimum wages that can entail some positive effects. From employers' perspective, one of the arguments for raising the minimum wage is the fact that higher minimum wages will motivate workers to work better, and, as a result, productivity will increase. "Higher wages can motivate employees to work harder, to treat customers better, make them more reluctant to leave their jobs and help them to bring fewer worries and distractions to work" (Posen). It implies that monetary incentives are usually the ones that motivate people for better work. When workers are compensated more generously for their efforts and dedication, they feel much happier and motivated. They will concentrate more on their tasks rather than on financial anxieties. A large part of motivation comes from meeting basic needs for food and shelter. Motivated and happier employees will make net sales of the company go up. Companies will see positive numbers in their monthly income statements showing a considerable increase in their sales or service revenues.

Business owners are recommended to raise the minimum wage based on the fact that it can "reduce an employer's costs associated with worker supervision and turnover" (Posen). Labor turnover and absenteeism are negative phenomena that are believed to undermine the efficiency and productivity of any business. Business owners try to eliminate them by any means, and raising the minimum wage is one of those effective tools that can help to do it. It's an ancient and time-honored strategy which they follow, unfortunately, for lucrative purposes rather than out of kindness. The research shows that this strategy was applied, for example, during the industrial economy, and Ford is one of the first companies that successfully launched this fruitful initiative. Henry Ford worried that labor turnover and absenteeism would lead to low efficiency of his production process (Silverman). "Paying higher wages was a way of attracting the kind of reliable workers who would keep Ford's factories humming" (Silverman). Ford's higher minimum wages were aimed, first of all, to attract, motivate, and retain quality workforce to increase efficiency and productivity. Much of the success of this profitable company is credited to its loyal and trustworthy employees without whom the production process was impossible. Ford is the leading example that should motivate companies to raise the minimum wage to eliminate the problem of labor turnover as well as absenteeism. Furthermore, more experienced personnel require less supervision.

It suggests that companies can also reduce their recruitment costs as they will eventually need to hire less managers and supervisors.

The Financial Times reports that “companies with reputational problems may improve their standing” by paying better (Posen). A raise in minimum wages will make the morale of the company higher and more positive. As a consequence, the company will not only increase its productivity but also will gain a good reputation. When a solid reputation and a good standing are established, it will result not only in an inflow of more skilled workers but also in a higher consumer demand that will, in turn, have a positive impact on the overall sales of the company.

A minimum wage raise affects the household and firms in a different way, but the bottom line is the fact that the benefits triggered by a minimum wage increase are quite obvious and clear. The wage of \$13 an hour is a big improvement for many Americans who are bracing themselves for the moment when the minimum pay level will grow up to \$15 an hour. Some people argue that even \$15 an hour is not sufficient to support a decent life in New York City where an annual budget should be at least \$35,000, an amount that would make them feel more comfortable and worry less (Bellafante). An annual income of \$35,000 implies the minimum wage of \$18 an hour based on a 40- hour week. \$18 an hour is an elusive wage that won't come into effect in the near future. Meanwhile, it is hoped that the labor movement will reach the goal of \$15 an hour after its persistent struggle. This considerable hike will increase impoverished workers' profit margins and get them anywhere closer to a full and normal existence. People deserve to live a life above the poverty line, and the higher minimum wage should be aimed to sustain a steady ground under their feet. A \$15 minimum wage should be the minimum subsistence level that will help to solve the above- mentioned problems caused by sluggish minimum wages. More US companies are expected to start doing well by paying well (Posen). Although there are some adverse effects associated with higher minimum wages, positive outcomes are the ones that prevail because they put the greater emphasis on the moral issues of the country. It's hard to say exactly how much the minimum wage should be. It shouldn't be too high to avoid inflationary pressure, but it should be adjusted annually to keep up with inflation. A \$15 minimum wage is a fair deal that will create “a virtuous circle” both for employees and employers, and, as a result, the whole local economy will benefit (O'Connor). The positive consequences triggered by the wage raise are underestimated, but they are the ones that will bring new changes the country will see in the long run.

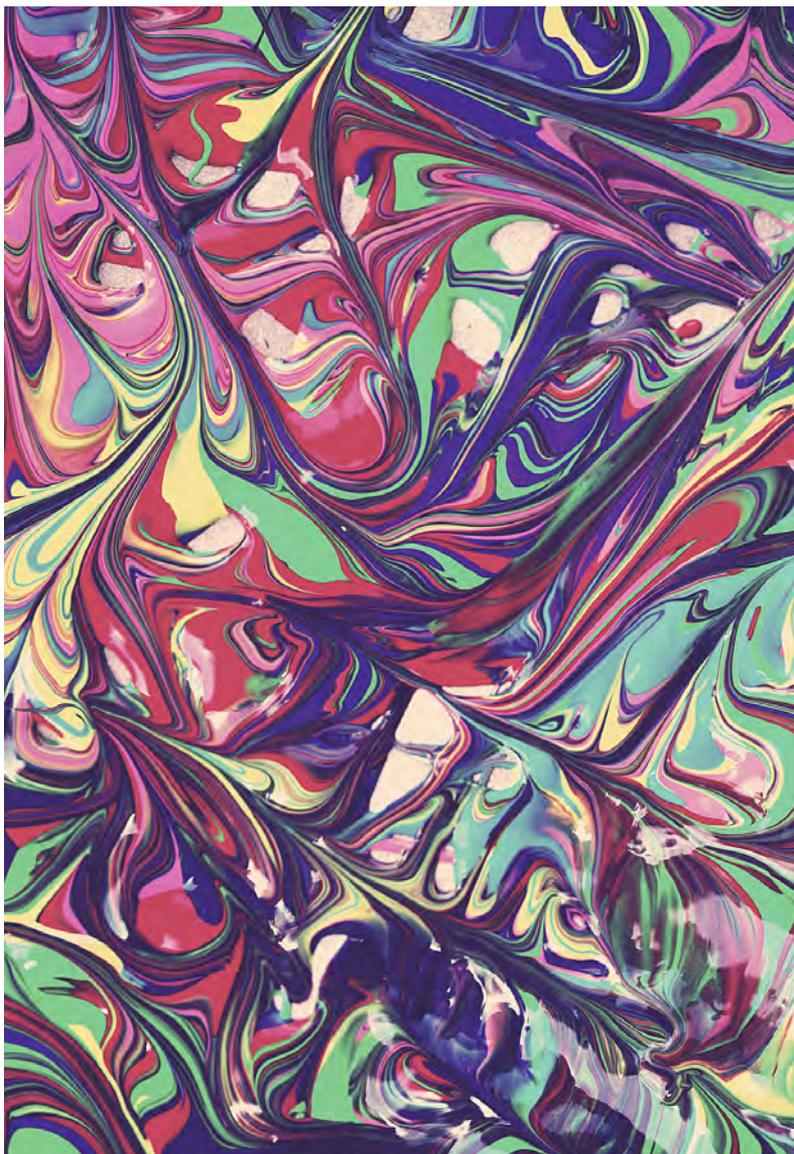


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Mini-Ethnography: An Observation of a Polyamorous Organization

By: Telijah Patterson

PREFACE: Romantic relationships have always intrigued me. They are complex and unpredictable, perhaps this is why I find them irresistible. For most of my life, my understanding of romantic partnerships has been shaped by western norms centered on monogamy. In time I have come to realize that monogamy in its strictest sense, that of having a pair bond or being able to maintain romantic attraction with only one person for the entirety of one's life, is much less common than I initially perceived; if not more a social construction, an imagined reality. Many groups around the world have a more flexible understanding of romantic pairings which supersede the bounds of monogamy. The Mosuo people, a small ethnic group located in the Yunnan and Sichuan provinces of China, are known for their matriarchal society and non-monogamous pair bonds. I was also exposed to the teachings of Islam through a class in school and learned that it permits men to marry up to four women. The Maasai people of Kenya practice polygamy and once a wife has borne a child, she receives a home of her own. There have been rumors about certain high profile couples suspected of having non-monogamous relationships. My curiosity was especially piqued by an article about an asexual man who had multiple partners. That seemed almost counterintuitive because there didn't seem to be a point in having multiple romantic relationships if a sexual component was not a part of that. When I first learned of what seemed to me to be unusual relationship types it was hard to understand why someone would choose such a lifestyle since trying to secure and maintain just one relationship seemed to be challenging enough. I slowly realized that relationships were not one-size-fits-all, but that they were unique to each individual. I eventually discovered that many of my friends had considered or were in non-monogamous relationships. In a quest to better understanding diverse viewpoint on relationships outside of normative frameworks such as monogamy, I decided to focus on the group Open Love New York (OLNY) for my mini-ethnography.

BACKGROUND

It is first essential to understand exactly what polyamory is and the particulars about the group I chose to observe, Open Love New York. Polyamory is often conflated with other types of non-monogamy such as polygamy and swinging. Polygamy is when a person marries more than one person, but this type of relationship is not always based on emotional or romantic attraction and is often a matter of cultural practice. Swinging is a non-monogamous pairing that is based primarily on sex. Partners in a pairing are allowed to have sexual relationships with other people, but are prohibited from forming romantic or emotional bonds outside of their primary relationships (Taormino).

Polyamory differs in this way. Polyamory is based primarily on emotional and romantic ties that may or may not include sexual exchanges. Polyamory is defined by Tristan Taormino in the book *Opening Up* as: “the desire for or the practice of maintaining multiple significant, intimate relationships simultaneously. These relationships may encompass many elements, including love, friendship, closeness, emotional intimacy, recurring contact, commitment, affection, flirting, romance, desire, erotic contact, sex, and a spiritual connection” (Taormino). There are many different ways it is practiced. For example, some people are in closed group relationships in which a number of people, three or more, are all in a relationship with each other. More often though people have primary relationships and separate secondary relationships. Within the polyamorous community there is an understanding that jealousy will arise and when it does the best solution is to talk it out and negotiate boundaries to help everyone involved.

Now that this has been established, I will discuss what Open Love New York is and its function. The official website for the group states that: “Open Love NY was formed by a small group of leaders in the New York polyamorous community at the Poly Living Conference in February 2009. These leaders envisioned a group that is membership-driven – by the people, for the people of the polyamorous community (Open Love).” The group is organized into two committees, the executive committee and the organizing committee. The executive committee oversees all the affairs of the group and manages membership and communications, it includes the President, Vice President, Director of Communication, and Director of Membership. The organizing committee is made up of individuals who coordinate regular events for the group such as PolyChai, PolyCocktails, and Poly Movie Night.

Each coordinator manages one event that happens about once a month. PolyChai is a sober mixer which occurs at the BlueStockings bookstore in the lower east side of Manhattan. PolyCocktails is similar to PolyChai, except that it occurs at a club called The Delancey, in the lower east side of Manhattan, a few blocks away from the BlueStockings bookstore and attendees are allowed to drink alcohol. Poly Movie Night is at the Bureau of General Services, an LGBT center where films are screened a social follows after the event. On its website the group has outlined Rules of Conduct in which it expects its members to follow to which respect is paramount. There is special emphasis on creating a safe space for all sexual orientations, as well as gender and kink identities. Members who violate the rules are removed from the group. It is easy to mistake the group as a platform to meet and date, but this is not its purpose. OLNy explains its purpose on its website by stating that it “exists to build and serve the community of people in New York City and surrounding areas who aspire to love with honesty and freedom. We work with our members to educate the public about the existence and merits of responsible relationship choices between consenting adults.” When I spoke with one of the organizing coordinators, he explained to me that OLNy is “a community of support. People want to know that they are not alone or crazy in being polyamorous.” It is also important to note that the group has a significant online presence on Facebook which extend the community beyond the New York metro area.

OBSERVATIONS

My first in-person interactions with OLNy were at Poly Movie Night. Usually the event is held at a set location near Chelsea, but on this particular day it was at the Roxy Cinema, a niche theatre in an upscale hotel in lower Manhattan near Tribeca. The theatre is very easy to miss because it is not on the first floor of the hotel, but a lower level. The lobby of the hotel was adorned with lavishly embroidered leather sofas and armchairs, round oak tables with slick veneers that seemed like they were polished daily, hardwood floors, high ceilings and low lights. Live jazz played softly in the background. It felt like stepping back in time to the 1920s.

I was one of the first people to enter the movie room and found a seat in the middle of the theatre. It seated about 150 people comfortably and the seats were made of a red velvet material. The theatre filled at a slow and steady pace. Most of the attendees were white and nicely dressed. Although there were couples present I did not see groups of threes or fours holding hands. No one self-identified themselves as poly and it was very difficult to gauge-

how many people were at the event for the first time. Before the movie started the filmmaker gave a brief introduction. He mentioned that he had been working on the film for over five years and was pleased that there was such a large crowd. He noted that the original viewing dates were only set for three weeks, but due to the popularity of the showing had been extended for another month! Everyone clapped after hearing this. He concluded his speech thanking us again and asking us to stay afterwards for a discussion.

The film was colorful and included different perspectives on non-monogamy. Most of the people who were interviewed were white and established in high profile professions such as lawyers, executives, and engineers. They were mostly between about 30-50 years old. When the film concluded there was a thunderous applause and no one left their seats. Three people including the filmmaker who was featured in the film were invited on stage and spoke a little about themselves and their involvement with non-monogamy. One of the interviewees was on the executive committee of OLNy. The questions that were asked ranged from very broad such as, "How do you manage jealousy in your relationships," to very personal such as, "How do you manage relationships if someone has a child." Once the discussion was over the group was invited to go to the bar on the first floor to mingle and chat. My partner and I left promptly because we both had to be up early the next morning, but we also didn't feel very comfortable since we weren't sure if we'd have enough money for drinks.

My second contact with OLNy was through an interview with one of the executive members.. Like me, he is also a student at a public college in New York, and in addition to his duties on the executive committee, he hosts PolyChai once a month. We met in the evening after class and spoke outside. He is a proud gay man from Latin America, and he revealed to me that he is in a relationship with two people right now. He met both of his partners online. One of his partners is married to another man who is also polyamorous.

When asked about how he got involved with Poly Chai he mentioned that "I was attending Poly Chai for about three months when the coordinator told me that he had to resign because he was moving, so he asked me if I was interested and referred me to the executive committee. I have been the coordinator ever since and my involvement in OLNy has increased." I then asked him what he thought made PolyChai unique among the other events the group organizes. He mentioned that "Polychai is first and foremost non-alcoholic.

There also tend to be more LGBT attendees at PolyChai compared to other events.” As a woman, I was particularly interested in how OLNy tried to make women feel safe and secure. He was very happy to respond to this question, “One of the ways we try to ensure women feel comfortable in the space is that we have a poster with Rules of Conduct at each event so that coming in people already know that they are expected to be respectful of other attendees. We are also very strict about our policy that no one should exchange contact information such as phone number or even e-mail at the events. If they are caught they are immediately dismissed. We feel this helps because it makes it very clear that our events are not for matchmaking or to pick up people. This is an event to build community and friendship. We have had some single men who come to the event knowing little about polyamory and who seem to think that any woman they see is open to sex with them. We are very vigilant about identifying these people and removing them if the people to who they are speaking seem uncomfortable.”

Because I had noticed there were not a lot of people of color at the film screening, I asked him what the demographics of the group were. He agreed that the group was predominantly white and that most of the members were well established in their careers. Many of the members were somewhere along the LGBT spectrum, at least half he guessed. Some had families, but most were childless. He also noted that “since I have become the coordinator of PolyChai I notice a lot of more people of color have come to our events. I think representation helps, when other people of color see that I am a man of color leading this event they are less hesitant to come back to one of our events.” I asked him what might account for this narrow demographic, despite the groups policies of welcoming people of diverse backgrounds. I then showed him an article written by a woman who decided to leave a different polyamory group because she felt that the polyamory community in general lacks diversity (The Big). Matthew disagreed with most of it saying “There is definitely a sense of superiority that comes with being poly... but it is more like a religious experience. People do tend to think that they have been endowed with enlightenment when they become poly; because for most people the idea makes a lot of sense. They understand polyamory. They believe in it; even if they are cognizant of how much complexity it can add to someone’s life.” He made a concession that people who tend to behave in this way are often new to the group and OLNy urges its members to respect every relationship style whether it be monogamy or another form of non-monogamy.

When wrapping up our interview I asked him whether the group has any resources for its members and he noted that they keep a list of professionals who specialize in polyamorous issues. For example, there are lawyers who

help to settle disputes when a polycule (group of people in a polyamorous relationship living in one house) breaks down. There are medical doctors who are familiar with polyamory that are non-judgmental in their treatment. There are also relationship counselors who are “poly-friendly” and are not biased to the structure of polyamorous relationships. I concluded our interview thanking him for his time. He seemed very happy to have his voice heard and told me that if I had any further questions I could contact him.

CONCLUSIONS

Polyamory is not a trivial life choice, but an integral part of a person's being. It is practiced differently by different individuals, but overall is underscored by deep respect and open communication among all parties involved. Organizations such as OLNy help to destigmatize polyamory and are essential to help those in polyamorous relationships cope with society's general disapproval.

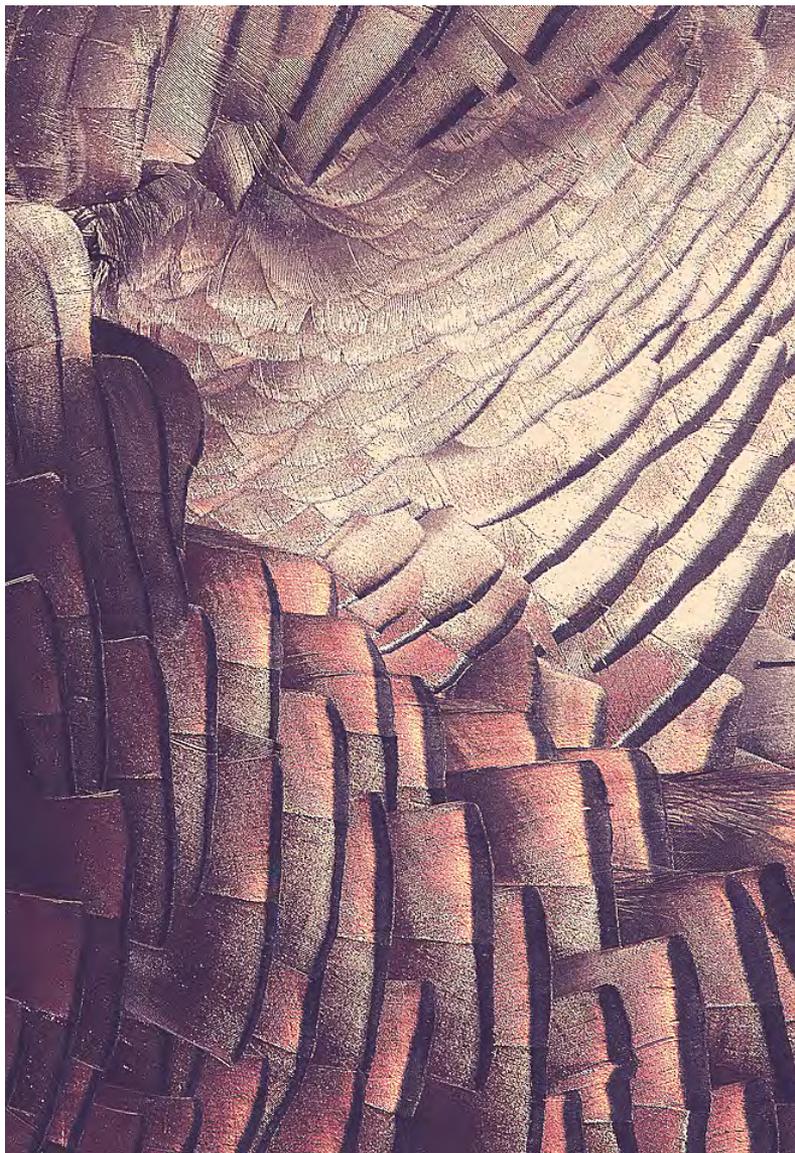
I found that most of the people I spoke to online through Reddit and on the OLNy Facebook page were very open to discussing the challenges and rewards of being polyamorous. People were often very thoughtful and tended to view confronting feelings of jealousy as an opportunity for growth. There is a great sense of community, and if someone ever asked for advice there were always several people ready to offer it. Whenever judgmental or inaccurate remarks were made, there people stepped in to correct the matter. Going forward I would like to investigate how class and race impacts who participates in OLNy.

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Sanctuary Cities – Haven or Hazard?

By: Angela Jonsson

On the morning of February 24 2018, Libby Schaaf, the Mayor of Oakland, California, issued a statement warning residents of impending operations by U.S Immigration and Customs Enforcement (ICE) in the area. In doing so, she notified any undocumented immigrants of the possibility of detainment and deportation, and offered them a chance to plan for the safety of themselves and their families in advance -- possibly even to evade capture. Her actions incited outrage in many who argued that what she did was no different than warning a criminal that law enforcement was on its way to make an arrest. Regardless, Schaaf stood by her actions in the face of the backlash, claiming “it is Oakland’s legal right to be a sanctuary city” (Schaaf). Oakland is just one of many cities across the United States that claim this status, offering protection to immigrants and a disinclination to work with federal law enforcement towards detainment and deportation. This paper seeks to examine the specific issue of sanctuary cities from a moral perspective, using the theory of care ethics to ascertain whether they are morally justified or not.

Drawing from the theory of care ethics, specifically from the writings of feminist philosopher Virginia Held, and researching both sides of the arguments, has led me to the conclusion that there is moral justification for the existence of sanctuary cities. The ethics of care call for fostering relationships of familial care on a larger scale, for creating and sustaining caring relationships, and rejecting the discounting of emotion in favor of rationality. Held writes, “From the perspective of law, emotion is seen as a threat to the impartiality law requires.... But from the perspective of care, the social relations that must exist before law can get off the ground are, importantly, a form of caring relations between, say, fellow citizens, or, potentially, fellow members of regions or of the globe” (Held 145). If we choose to examine sanctuary cities purely from a rational standpoint we discount the humanity involved, and the emotional components necessary for healthy and thriving care-centered relationships. Immigration policies affect the lives of not only countless families and individuals, but also the economic stability and safety of many communities in this country. Using the theory of care to evaluate the arguments on both sides, I will show that sanctuary cities are morally justified.

Undoubtedly the complex topic of immigration being discussed worldwide incites passionate stances on both sides of the conversation - with the issue of sanctuary cities holding particular importance in the United States. Sanctuary cities claim, in varying degrees, that they will not work with the federal government toward the arrest and deportation of unauthorized immigrants. This plays out in local government and law enforcement not asking for peoples' immigration status while policing, mayors warning immigrants of an impending ICE raid, or law enforcement refusing to honor requests from the federal government to hold immigrants in police custody until they can be detained and deported. While sanctuary cities may not be breaking any explicit laws, they are acting against the greater principle of legal immigration, borders, and societal rules. Discounting legality, the question remains whether the proponents of sanctuary cities have an ethical justification for their actions and policies or not.

The most fundamental argument for sanctuary cities is they protect immigrants from deportation, family separation, and detainment. The reasoning is that law abiding and productive immigrants should not be permanently separated and deported for low-level offenses like jumping turnstiles, minor traffic infractions, or marijuana possession. Recognizing the value and humanity of the immigrant is essential to this argument, translating the domestic and personal relationships we hold, and in turn rendering that care we feel on a broader scale. Held writes "the idea of rational control asks us to exclude emotional influence in achieving autonomy...but the emotions excluded would exclude the emotions of empathy, sensitivity, and mutual consideration" (197). Care ethics asks us to reject the idea that emotion should be discounted in favor of rationality, because it is these very emotions of caregiving that are integral to understanding the morality of sanctuary cities.

The problem with this position is it asks us to overlook a major part of what determines and shapes the world we live in -- rules. The policies and guidelines of immigrating to this country have been laid out to regulate the allocation of resources and the benefits of citizenship. If we believe that laws are necessary for the success of any community, advocating for the purposeful disobedience of them undermines the power and value they hold in a larger sense. Depending on the importance we place on the larger concept of rule following, any variance in adherence to these laws would be considered immoral -- although as history has repeatedly shown, laws are not always moral and are often unjustly used to exert power, to control those who would incite revolution, and to discriminate against certain groups. To obey an immoral law, merely because it is established, would be an ethical mistake that does not consider the extensive moral consequences.

The ethics of care advocate for a restructuring of the ways we view and implement ideas of justice and law enforcement. Held argues that by prioritizing and developing caring relationships within communities, we diminish the need for police force or militarized action. Considering the lives and situations of those who choose to immigrate to this country illegally, whether they are simply searching for a better life for themselves and their families, or desperately escaping from war and violence, we can remind ourselves that these actions are taken by those who seek the same things we value for our own familial relations. Held writes about care and justice, “At the level of society, justice now has overwhelming priority, as care is marginalized to private provision or grudging and stingy public support... Care should at least be on a par with justice, and should perhaps have priority even in the social order... There can be no justice without care” (Held 147). Choosing to view unauthorized immigrants in our communities as an extension of those we care about.

Another argument for the morality of sanctuary cities is that they encourage healthy and trusting relationships between law enforcement and community members. People are less afraid to call the police if they have been victims of a crime or witnessed one, when they do not fear deportation in the process. Tom Wong, a professor at the University of California who has studied data gathered by the Center for American Progress, a progressive public policy research organization, asserts that crime is lower and economies are stronger in sanctuary cities. His study shows that compared to nonsanctuary cities, “there are, on average, 35.5 fewer crimes committed per 10,000 people, median household annual income is \$4,353 higher, and the poverty rate is 2.3 percent lower, unemployment is also 1.1 percent lower in sanctuary counties compared to nonsanctuary counties” (Wong 1). The data suggests that sanctuary cities create an atmosphere of caring relations, which in turn encourage healthier economies and safer communities.

Those who argue against this description of sanctuary cities claim they encourage illegal immigration to their area or city, further exacerbating the issue and stretching public resources thinner. When a city is known to be safe or friendly toward those with undocumented status, it would follow that more unauthorized immigrants would settle there, perhaps putting a greater strain on government assistance programs, schools, and job opportunities. However, this is not the case. As Tom Wong states in his study, “Public benefits usage—whether it is the percentage of households that receive SNAP...the percentage of households that receive Supplemental Security Income...or the percentage of children under 18 who live in households that

receive public assistance—is statistically significantly lower in sanctuary counties compared to nonsanctuary counties” (Wong 8). The data produced from this study suggests that poverty levels has been shown to go down, while the median household income rises. Families stay together and can provide and contribute in a healthy, meaningful way when they are not living under the constant threat of deportation.

Another reason to argue for the morality of sanctuary cities is the protection against the possibility of discrimination. The risk of ethnic and racial profiling is greater when city governments aid federal agencies in their deportation of immigrants. When local law enforcement works with ICE to capture and deport unauthorized immigrants, there may be a tendency to target and actively seek out people of a certain race, skin color, or ethnicity. Cities that agree to detain people, while ICE ascertains their immigration status, might choose to do so based on their ethnicity alone. Additionally, people have been unjustly held for days, violating their Fourth Amendment rights. There is a greater chance for civil liberties to be violated when cities are aiding federal governments in seeking out and identifying unauthorized immigrants in their communities.

Maureen Sweeny, a professor at the University of Maryland School of Law, explored the constitutional dangers when local and state law enforcement utilize their power to assist the federal government in pursuing immigration enforcement. In one study Sweeny focused on, the DOJ found that in North Carolina “Latino drivers were targeted for traffic enforcement at a rate between four and ten times greater than non-Latino drivers... [and] that many of the deputies' discriminatory practices were specifically intended to facilitate immigration checks on the targeted Latinos” (Sweeny 231). When local law enforcement is focused on making immigrant arrests, not only do they do so to the neglect of their many other duties, but they are acting with neither the training nor the authority to do so, resulting in gross abuse of power.

The side that would contest this argument believes that unauthorized immigrants are here illegally, therefore, when arrested, should be flagged for deportation by whatever means necessary. These opponents of sanctuary cities claim that their existence undermines the rule of law and the country's immigration policies. They argue that at least sanctuary cities should not let unauthorized immigrants back out into society once they have been arrested for a crime, no matter how small that crime may be. The unauthorized immigrant, arrested for whatever infraction, has essentially committed a double crime in the eyes of those who do not believe in the morality of sanctuary cities. This side argues that it's not enough for fingerprints to be-

recorded in the system for the federal government to investigate further, but that local law enforcement should take additional action.

It's important to recognize that not all arrests are legitimate; additionally, not all arrests warrant deportation. If a serious crime has been committed, law enforcement in sanctuary cities do not release that person back into society, but instead take the appropriate steps toward arrest and trial. But, when local law enforcement is purposely pursuing immigrant deportation, there is a greater risk of injustice being committed. A systematic pattern of discrimination and profiling makes room for wrongful arrests. Care ethics maintain that it's imperative to question the morality of laws and structures of power in our political system because, "relations of power can easily undermine the value of care" (Held 197). How does our government and policies differentiate who has the right to due process, protection from unfair punishment, and freedom from unnecessary imprisonment? Are these rights that we believe should be afforded to all human beings, or merely extended to citizens of this country?

Using the ethics of care to evaluate these arguments, we can recognize the value it places on the fundamental elements of relationships and the importance of caring dependencies. The principles of empathy, trust, and healthy social relations produce a social imperative to care for the unauthorized immigrant and their welfare. By generating a globalization of caring relations, we recognize the impact of fostering trusting relationships between communities and law enforcement. Held writes, "noticing interdependencies, rather than thinking only or largely in terms of independent individuals and their individual circumstances is one of the central aspects of an ethics of care" (Held 195). Care ethics requires us to extend the caring relationships we experience with our immediate families, to the larger immigrant community and their experience. In choosing to prioritize care and caring relationships, we create safer and healthier communities.

In her warning to the people of Oakland, Schaaf wrote, "My priority is for the safety and well-being of all residents – particularly our most vulnerable – and I know that Oakland is safer when we share information, encourage community awareness, and care for our neighbors." This statement encapsulates what it means to view this issue through the ethics of care, to channel the emotions of empathy, sensitivity, and trust into public policy and governmental decisions. Held writes that care is more than just a necessary disposition, it is a new way of viewing the world and how we walk through it. Care ethics provides us with the means to "foster trust and mutuality in place

of benevolent domination,” an idea that does not resonate with our current policies (Held 197). If we let the ethics of care guide our policy making and decisions regarding immigration, how different would our society be?



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The Italo-Ethiopian War: A Lasting Impact on African-Americans

By: Emerald J. Lucas

On October 3, 1935, Italian armed forces invaded Ethiopia. It was the beginning of a conflict that would last for seven months, ultimately ending with Ethiopia succumbing to the European nation. The rest of the world watched as Italy, led by Fascist dictator Benito Mussolini, seized an independent country with sheer brute force. Black Americans living in the United States monitored the situation with keen interest. Ethiopia held a special place in the hearts of many black Americans, due to its rich history and cultural significance.

In the months following the invasion, Ethiopia would come to be featured on the front pages of nearly every black-owned newspaper in the nation. Rallies and protests would be staged in big cities and small towns alike, as well as volunteer recruitment drives. Preachers spoke from the pulpit about the plight of Ethiopia. Musicals, plays, and films were made about the subject. Ethiopian flags were carried into boxing matches, and flown in the streets. Black people living in America would unite against a common enemy in a way that had not been seen since the anti-slavery efforts of the 19th century.

As a result of this collaboration, black Americans began to feel a closer bond to Africa and the African people. The collective efforts to spread awareness about the current situation in Ethiopia also led to an increased knowledge of African history as a whole. Many black Americans felt that having ties to a country with such a rich and regal history was far superior to the ever-present history of slavery and oppression that existed in America. The Italo-Ethiopian war prompted the creation of a new national identity. No longer content to be called black or Negro, many people now began to see themselves as African-American.

Ethiopia was a Christian nation, and had been so since the 4th century A.D. In an article written for *Foreign Affairs* in October 1935, W.E.B. Du Bois claims that Ethiopia was a center of Christianity on par with Rome and Constantinople (Du Bois 83). Ethiopia was believed by many to be the resting place of the Ark of the Covenant, a wooden chest said to contain the stone tablets bearing the Ten Commandments. The Ethiopian people were believed to be the descendants of King Solomon and Queen Sheba.

Because of this connection to King Solomon, it was believed that the Ethiopians shared the same bloodlines as followers of the Jewish faith, meaning they were also God's "chosen people" (Moore 1936).

Because it was a Christian nation, populated by Christian people, Italy could not use the traditional justification of colonialism. They were not bringing civilization to a tribe of savages, as so many European nations had claimed to do before. In fact, Ethiopia was on the path to modernization. The country's ruler, Emperor Haile Selassie I, had begun many initiatives to develop the country. By the mid-1930s, there were projects underway to develop new schools, roads, hospitals, and highways. Despite these facts, Italy chose to portray Ethiopia as a savage and backwards nation. They pointed to the fact that they were not yet fully industrialized. Italy also tried to justify its position by pointing out that domestic slavery was still common in Ethiopia. Du Bois states that although this was true, the form of slavery practiced there had little in common with the exploitative labor practices of the Trans-Atlantic slave trade (Du Bois 86).

Many black Americans were optimistic and held out hope that Ethiopia might somehow stave off the Italian army. Du Bois presented a much more realistic view in his article. He acknowledged that Italy had a superior military, and that as long as the rest of Europe sat back and did nothing, Italy was likely to succeed in its mission (Du Bois 87). Du Bois also writes, "the black world knows that this is the last great effort of white Europe to secure the subjugation of black men" (Du Bois 88).

Activism amongst the black community had actually begun months before the official start of the war. Black Americans expressed their outrage in any way they could. Frequently, this came in the form of peaceful protests. There were some reports in the news of rallies taking a violent turn: particularly in places like Harlem and Brooklyn where black and Italian Americans lived side by side. In July 1935, a rally was held in Harlem to drum up support for the Ethiopian cause. The meeting was intended to be a precursor for a larger rally that focused on recruiting soldiers to travel to Ethiopia and fight in Emperor Selassie's army. At the rally, many of the men present pledged their loyalty to what they identified as their African homeland. Some promised to shed their blood in defense of it, if need be (*Harlemites* 1935).

One of the speakers at the Harlem rally was Samuel Daniels, a native of British East Africa who became an American citizen in 1924. In his speech, Daniels claimed that all the white countries of the world were secretly backing Italy in the fight against Ethiopia. He urged anyone with technical training to travel to Ethiopia and put their skills to use there. Daniels also-

claimed that while Ethiopia could not legally recruit soldiers on American soil, he had inside knowledge that anyone who volunteered to travel there for that purpose would be more than welcome (Harlemites 1935).

The New York Times reporter relayed an interesting quote from the Harlem rally. At some point the chairman of the event, Rev. Harold H. Williamson Jr., said, "I like the word African. No more Negroes an' shines an' coons. African!" (*Harlemites* 1935). This is clear evidence that members of the black community had begun to associate more closely with the African cultural identity. There is a sense of honor and pride that came along with the use of the word "African," as opposed to the often derogatory use of other racial terms.

Some volunteers took a more direct role in the conflict. Colonel John Robinson, a native of Mississippi, traveled to Ethiopia in the summer of 1935 and helped establish the country's Air Force. Robinson had faced discrimination in the U.S. He was denied entry into an aeronautical school because of his race. He worked at the school as a janitor until they eventually agreed to admit him (Corbould 200). In Ethiopia, Robinson led numerous missions to deliver correspondence and medical equipment to troops on the ground. He was constantly dogged by Italian planes, and reported that on several occasions he was affected by the poisonous gas the Italians were spraying down onto the Ethiopian countryside (*Air Aid*, 1936). When Robinson returned to the U.S. in May 1936, he was given a hero's welcome and hailed as an inspiration to the black community. He later went on to become an instructor at the Tuskegee Institute, a historically black university in Tuskegee, Alabama that would later serve as the training grounds of the famed Tuskegee Airmen.

In September 1935, Joseph E. Webb issued a call to action. His letter, published in the *Chicago Defender*, stated "Let every Negro look forward-think seriously and do their bit for Ethiopia." Webb criticized African Americans for their perceived lack of action in regards to the situation. He was also critical of the limited attempts to settle and industrialize Liberia, and warned that it may be the next country to fall victim to a European power (Webb 1935). A few weeks later, a team of seven black surgeons formed a volunteer field hospital unit and set out for Ethiopia. Horace G. Knowles, a former U.S. ambassador to Romania, helped organize fundraising efforts to send additional doctors and medical equipment (*Field Hospital* 1935).

In the book *Becoming African Americans*, author Clare Corbould explores the effects of the Italo-Ethiopian war on the collective identity of black Americans. According to Corbould, even people without access to national public platforms were able to make their voices heard by speaking out at-

churches, community meetings, and by writing letters to newspapers. She states that many of the letters were seeking information on the best way to travel to Ethiopia and join in the fight (Corbould 196). In addition to black men's desire to fight for Ethiopia, Corbould writes that many black women wrote letters expressing a desire to relocate their families to Ethiopia. Some believed that despite the current situation, conditions in Africa must certainly be better than they were in the Depression-era South (Corbould 206).

In December 1935, *The New York Times* published an article that was seemingly critical of President Roosevelt's Good Neighbor Policy. Writer Harold B. Hinton argued that the policy led to America completely ignoring and refusing to engage in the conflict in Ethiopia. Earlier that year, Congress determined that the American public was largely in favor of keeping the country out of any potential conflicts. Americans were advised against having any involvement in the conflict. The sale of goods or weapons to any "belligerent" nations was forbidden. Additionally, American citizens were advised against traveling into war zones. They were warned that if they did so, it was at their own peril, and the U.S. Government would not intervene to help them if trouble arose (Hinton 1935).

By April 1936, the League of Nations were forced to admit that they were powerless to stop the Italian incursion. Journalist Sterling Young was very critical of the League's most powerful members, England and France, going as far as to compare them to Pontius Pilate. According to Young, the British public was in favor of stepping in to defend Ethiopia, even if this meant going to war with Italy. France, on the other hand, voted against any additional sanctions against Italy (Young 1936). Ultimately, neither country would come to the aid of Ethiopia.

According to Corbould, all of the campaigns that arose among the black population of the U.S. during this time period were indicative of a new found allegiance to Africa, rather than blind patriotism towards America (Corbould 206-207). Black Americans were able to draw parallels between the colonial racism exhibited by Italy and the racism they were forced to endure in America. Corbould writes that many black activists claimed that the American government's treatment of its black citizens was on par with Germany's treatment of its Jewish citizens. They found it hypocritical that the US would denounce Hitler's practices while openly enforcing Jim Crow segregation and allowing racial violence like lynchings to go unchecked (Corbould 209-210). They were also acutely aware of America's reluctance to speak out in a situation where a predominantly black country suffered at the hands of a white oppressor.

The 1930s were a dark time for many black Americans. Many of the New Deal projects meant to help Americans recover from the Great Depression excluded people of color from participating (Corbould 212). European immigrants were increasingly accepted as “white,” but black Americans continued to face discrimination. White immigrants were able to proudly proclaim their country of origin, and there was an increasing presence of German-American, Irish-American, and Italian-American citizens. Most black Americans were unable to trace their ancestral origin, largely due to the lasting repercussions of the Atlantic slave trade.

Ethiopia, with its regal traditions and charismatic Emperor, had long been a beacon of hope to many people of the African diaspora. Unfortunately, it wasn’t until its existence was threatened that the majority of black Americans turned their attention towards the country. In his critical article, Joseph E. Webb wrote of the “Negro” in America that “they never become aroused until the house is on fire” (Webb 1935). Italy’s invasion of Ethiopia brought that country to the forefront of the world stage. It kindled an interest in and sense of unity towards African heritage and culture amongst black Americans that had never before existed. Because of this, it can be argued that the Italo-Ethiopian war paved the way for the many pro-African movements that would come later in the 20th century. The words of Rev. Williamson would also have a lasting effect, as more and more people would come to embrace the term “African-American,” a reflection of the pride they felt in the African motherland.



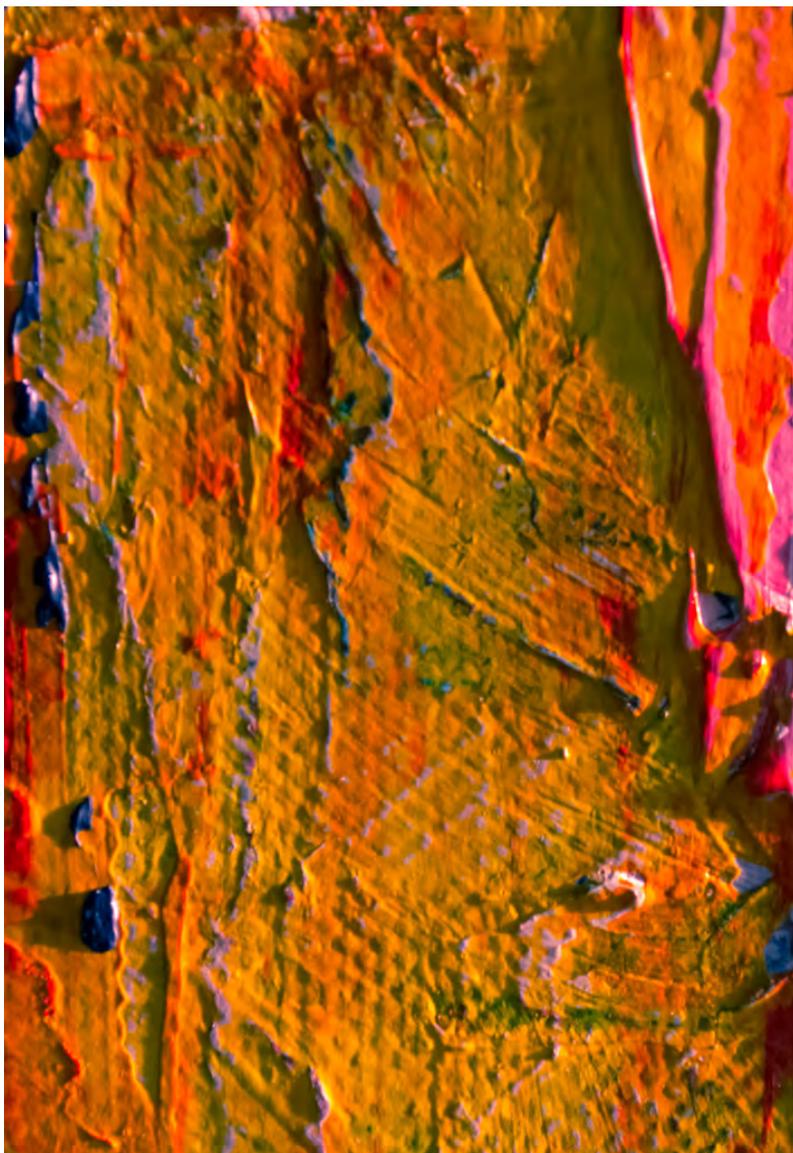
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Assessing NAFTA Adverse Economic Outcome to Mexico

By: Janghan Kim

Introduction

Since the North American Free Trade Agreement (NAFTA) went into effect in 1994, the agreement has ushered Mexico into a new trade agreement with the U.S. and Canada. During this period, it was forecasted the trade agreement would enhance Mexico's economic growth and expansion. In this regard, the main purpose for the NAFTA trade agreement was to support and put into effect identified economic policies such as the liberalization in manufacturing, foreign investment, and ownership (Lewis and Margaret 832). In this case, the idea was to ensure that the utilization of these policies allowed Mexico to obtain economic efficiency and progress that was beyond what was attained prior to the agreement (Lee 107). Undoubtedly, some policy changes were necessary, but the outcome is characterized by decades of economic failure founded on the available social indicators (Valentine 69). For example, when comparing Mexico's development past prior and after NAFTA, the outcomes of this comparison provoke public debate about what transpired in the treaty; largely, whether the policies in the agreement contributed to Mexico's poor economic outcome over the years. The North American Free Trade Agreement came at a time when the American economy was more dependent on an expansion-driven agenda that tied Mexico to the United States market economy. Consequently, when the U.S. suffered the great recession, Mexico was one of the countries in the region that experienced the effects of the recession as evidenced by a decrease of 6.7% in the Gross Domestic Product (GDP) (Mumme 746). Poor foresight and governance by Mexican officials in the signing of the NAFTA agreement liberalized trade and increased economic contact, but also depressed economic growth and worsened Mexico's agricultural sector.

Income and Growth

From the Mexican perspective, its acknowledgment of the North American Free Trade Agreement was based on whether it could sufficiently boost the economic situation in Mexico. In 1992, Mexico GDP growth rate, when compared to other countries located in Central and South America, was ranked 18th among 20 countries (Simon 667). However, this positioning

was not the case in prior years where Mexico was a model nation in the region. Notably, before NAFTA in 1960-1980, Mexico virtually doubled the income per person at a rate comparable to other Central and South American countries within the region (Ferrier 152). The period between the 1940s to late 1970s in Mexico is known as the Mexican miracle due to the country's achievement of an average 3% annual economic growth throughout the period (Hamnett 251). This growth was fueled by import controls, infrastructure investment, and industrial expansion with the rate peaking during the 1960s. The Latin America debt crisis of the 1980s weakened Mexico's economy. Its lack of adequate infrastructure for competition and combined with the weak post-debt crisis economy means that Mexico had a weaker bargaining power coming into the agreement.

Moreover, NAFTA was a vital part of a reform process, which started with significant trade liberalization reforms. Such trade guidelines were designed to expand, allow, and support realized policies on an irreversible economic path different from the policies used in the period before 1980. Nevertheless, if Mexico could have sustained the growth rate that was reflected before the Latin America debt crisis, today it could be a reasonably high-income nation (Ferrier 158). Here, the country would have a significant per capita GDP greater than that of Portugal and Greece. While the annual average growth of GDP in the Latin America region has been approximately 2%, Mexico's economy has grown at a slow rate of about 0.6 % annually (Lewis and Margaret 828). Therefore, as the region progressed in the years after NAFTA, Mexico economic growth grew only by half. As a result, there was no important progress toward decreasing poverty, Mexico's poverty rate increased, and more citizens were living below the poverty line. According to available statistics, the national poverty levels in 1994 were 52.4 %, which remain substantially similar in 2012 at 52.3% (Lewis and Margaret 827). In this regard, the poverty level has remained extreme with a significant portion of the population unable to afford basic healthcare, food, and education. Moreover, the gap between the rich and the poor has widened significantly. On the contrary, when comparing the poverty levels within the Latin America region and poverty levels in Mexico, the Latin American region has managed to experience modest reductions in the poverty rate.

Equally important, the distribution of the economic benefits led to cases of accentuating financial inequality among the citizens. In this view, trade liberalization by NAFTA caused a greater disparity in wages, and consequently, the wage rate fell and was associated with the peso recession crisis. Often, studies reflect that the benefits of the agreement failed to spread to all households as projected or anticipated. Instead, those who

benefited were Mexican workers that were more skilled and working close to the American border. Similarly, the rate of unemployment increased rapidly during and after the trade liberalization treaty. Local farmers were the most affected because they abandoned farming practices with an intent to shift and concentrate on the manufacturing industry promised by the agreement. For this reason, in the year 1990-1994, the average percentage rate of unemployment was at 3.1%, but during and after the NAFTA period, the rate grew to about 5 % (Ferrier 157). As a result, Mexico was characterized by a high level of free labor because the unemployed have to engage in some economic practices for survival generally. As an outcome of the trade deal, there was an uncontrolled movement of individuals to the U.S. in search of employment opportunities leading to a considerable illegal population in the United States. Furthermore, using underemployment as a measure to identify the state labor market the percentage rate was at 7.2 % in 2005 and increased to 8.4% in 2013 (Ferrier 159). Thus, NAFTA contributed to greater ratios of inequality among the populace of Mexico.

Mexico, a developing country, made substantial policy adjustments through entering complex commercial deals that allow globalization, low tariffs, and reduced trade barriers to foreign direct investment. In this outlook, the main motivation for joining such trade agreements was based on the promise and projections of growth, higher wages, and a reduction in income inequality. Usually, the expectation for the trade agreement was to benefit the low skilled labor sector in Mexico where such type of labor was in abundance. However, evidence points out that the trade agreement may have aggravated inequality in Mexico. This trade agreement led to critical economic disparities and changes within the region, further leading to economic effects that led to unequal income distribution among the Mexicans. For this reason, the relationship between trade liberalization and increased wage inequality depends on the distribution benefits across a geographical region. In the case of Mexico, this inequality was attributed to the agreement trade biases based on skills, or technological change and advancement. Most importantly, NAFTA contributed to wage inequality where skilled workers received an increased remuneration compared to unskilled employees, which led to increased remuneration gap.

In this context, NAFTA had a significant influence on Mexico's regional income disparities by determining individual wages of skilled and unskilled workers regarding education, migration, and other factors. As a result, the effect of such trade practices contributed to the individual, household, and regional wage inequalities (Lee 111). Therefore, homes in Mexico did not benefit equally from the trade agreement; for example, farmers suffered -

more considering they abandoned their farm practices to switch to manufacturing leading to unemployment because they were not adequately skilled for the industry. As a consequence, the agreement led to increased regional polarization - especially among the poor and the rich. Thus, the North American Free Trade Agreement failed to accomplish its intent of integration, or adequately providing trade opportunity to all the citizens, while increasing job opportunities. Due to the increased regional disparities, the trade led to higher migration to the U.S.

Agriculture and Employment

During the NAFTA negotiations, one of the significant tensions that existed between Mexico and the U.S. was in the agricultural sector. Mexico productivity was considerably lower compared to that of the U.S., and the trade agreement meant farm producers would have to disappear from the job market. However, the ability to produce self-sufficient commodities for the public was something the Mexican administration wanted to preserve. In this regard, the agricultural sector had employed millions of Mexican farmers and NAFTA abolished tariffs on farm products but maintained subsidies during a time when imports for specific products was increasing significantly. In Mexico, corn was an essential crop for farmers. However, the U.S. subsidized its corn produce and had higher productivity level compared to Mexico. As a result, various Mexican farmers were displaced leading to job losses amounting to about 2 million job losses in the family farm industry (Anderson 28). Additionally, the agricultural sector in Mexico relies on government subsidies to maintain stable production level. Besides, NAFTA intentions were directed toward promoting foreign competition and private foreign investors, which are economic ideas that may hinder the government from progression and efficiency.

Furthermore, seasonal employment was approximately 3 million, and suddenly family farms in Mexico were unable to compete with the increased production by the United States. In an attempt to search for better opportunities, the number of Mexicans migrating to the U.S. increased by 79% (Anderson 26). Thus, after NAFTA the emigration number from Mexico to the U.S. has been growing steadily, but it was realized if the Mexican economy had grown continuously at the same rate as it did from in 1960-1980 in the absence of NAFTA, Mexico may have turned out as a reasonably high-income nation. In this outlook, the emigration issue to the U.S. could have been minimized significantly, eliminating the possibility of Mexican immigration becoming a political problem within the United States. Also, it is presumed that the federal immigration issue in America is due to the poor economic performance of Mexico during the NAFTA era.

Mexican Integration with the U.S. Economy

NAFTA was a variable that accounted for Mexico's poor economic performance over the last decades. However, poor performance is further related to poor policy choices or decisions by the relevant policymakers during the period (Bacon 36). The banking industry in Mexico is not owned by the government, and, therefore, the most essential or critical exporting companies lack enough access to necessary credit. Usually this happens because most of the banking systems in Mexico are private and foreign-owned. For this reason, the country lacks an active industrial policy that can assist or support exporting firms in different ways such as spending a fraction of their GDP on research and development purposes. Moreover, NAFTA greatly integrated Mexico into the American economy by having most of Mexico commodities exported to the United States.

Conclusion

Overall, the principal purpose of NAFTA was to administer identified economic policies, which include trade liberalization in manufacturing, foreign investment, and ownership. Thus, the primary reason for trade agreement was to ensure the continuation and development of the realized policies to achieve maximum efficiency and economic progress in Mexico. In this view, the study compares the Mexican financial performance with that around the region within the past 20 years on the basis of the available indicators in the economic and social performances such as massive job losses or high unemployment rate, increased disparities in income, growth and development, as well as integration that caused poor policy decisions. Furthermore, the analysis identifies NAFTA as a significant contributory factor to Mexico's economic failure by creating the effects mentioned above. In this context, the paper has recognized NAFTA as a tool that contributed to regional inequalities where the northern part of the country advanced while the southern region did not progress. Notably, such disparities are partly responsible or attributed to political systems that hamper economic growth and expansion. Generally, NAFTA provided a conducive environment for the advancement and growth of the American economy while it caused great distress to the poor farmers in Mexico who anticipated better economic growth and expansion.

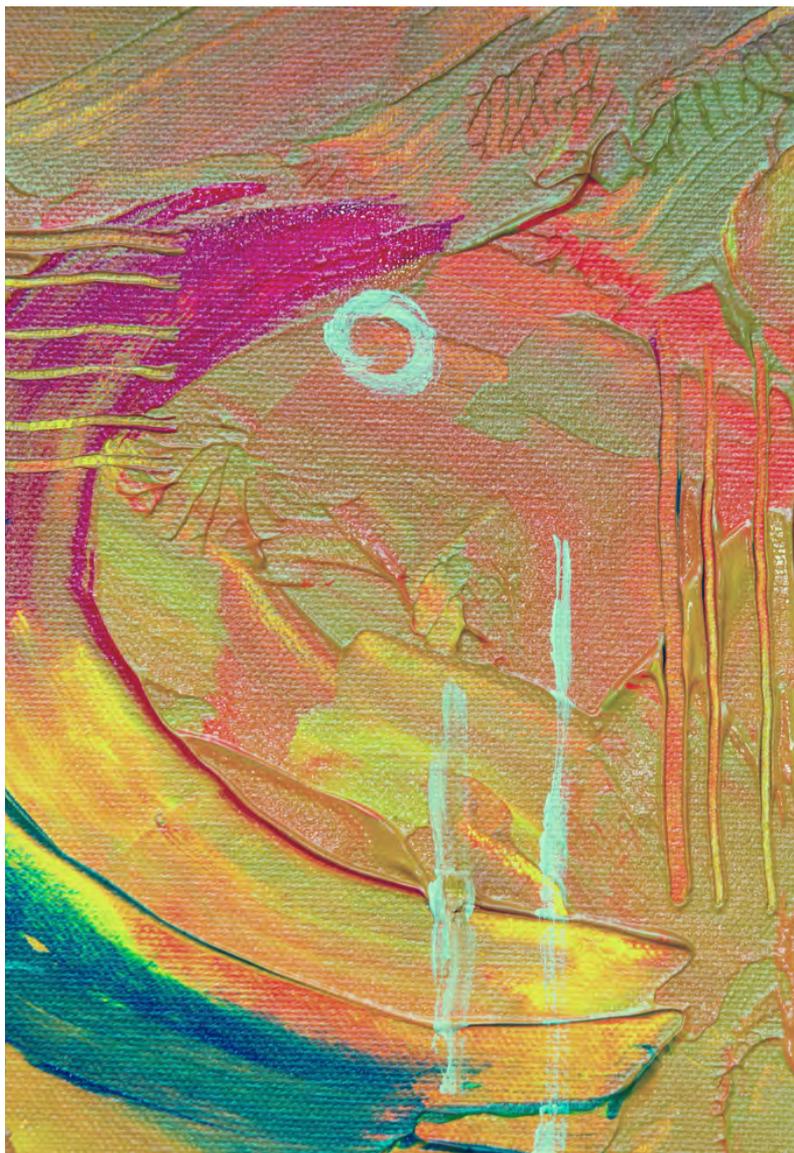


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TARGET IS “TARGETING” JACKSON HEIGHTS

By: Lope Jan Williams

Jackson Heights is known for its historic district located in the heart of Queens and is a multicultural neighborhood with a current population of 66,235. Jackson Heights is one of the most diverse neighborhoods in the United States. It is estimated that almost 200 different languages are spoken. Unfortunately, the future of Jackson Heights’s socioeconomic and cultural diversity is in jeopardy because of large-scale corporate development projects such as the new Target being developed on 40-31 82nd Street, where the old Jackson Heights film theatre was located. In 2014, the film theater was purchased by Sun Equity Partners and the Heskell Group for \$27 million. These firms intend to develop a 10-story building that consists of a Target and a residential and community complex. Though construction has yet to begin, developers have already signed a 15-year lease with Target and plan on building the store soon. Mom and pop shops and other small businesses around the area are concerned about Target’s impact on their livelihood. In addition, the developers are currently seeking approval from the city to rezone their specific location so they can build more than 10 floors. Target and the spot rezoning on 40-31 82nd Street will lead to significant changes in its multicultural identity, accelerate gentrification and cause displacement of existing businesses and long-time residents.

Small businesses play an important role in contributing to a neighborhood’s cultural atmosphere and its economic prosperity. However, large businesses like Walmart and Target have contributed to the displacement of small business in many different regions in the U.S. In the journal article, “The Effects of Wal-Mart on Local Labor Markets”, published in the Journal of Urban Economics, Ciccarella, Neumark and Zhang argue that Walmart negatively affects local labor markets, specifically in the retail sector. According to their research, small businesses such as grocery stores, apparel shops, stores that sell building material, and specialty stores have a significantly diminished presence in neighborhoods that have a Walmart (407). They also found that small businesses in small towns that have a Walmart suffer significant losses in total sales as opposed to small towns without a Walmart (407). Additionally, the authors claim, “There is also an academic literature on the impact of Walmart stores, focusing on the

effects of Walmart openings on local employment, retail prices and sales, poverty rates, and the concentration of the retailing industry, as well as the impact on existing businesses” (407). Analogously, Target is New York City’s Walmart. An article from *TheStreet.com*, “Walmart Is Still Being Banned From One of the World’s Biggest Cities, but Oddly Target Isn’t” by Michelle Lodge, discusses that Walmart and Target has the same business model, yet Walmart did not make it to New York City because of the city’s ordinance that makes it impossible for “big box” stores to open in order to protect the small businesses, especially the mom and pop shops and other small retailers. In the article, Michael Berne, president of MJB Consulting says, “Target has cultivated its hip good guy image through smart advertising, positioning and alliances. It’s a discount department store, but for the well-educated and affluent shopper”. Since Jackson Heights is a thriving residential district with many small shops are run by residents and serve neighborhood needs, Target. which has a larger inventory and the ability to sell consumer goods at a cheaper price than smaller stores, will most certainly displace small-time businesses in Jackson Heights. In addition, a giant variety store like Target will exacerbate traffic congestion and the already overcrowded 7 train, affecting access to Elmhurst Hospital, and putting the safety of Jackson Heights’ community at risk.

Besides displacing small businesses and local mom and pop shops, the new development property and its residential complex could lead to an increase in rent in the neighborhood and displace economically-disadvantaged residents. To ensure that developments like the one in Jackson Heights does not contribute to the process of gentrification and the displacement of the economically-disadvantaged, Mayor de Blasio and the city council of New York instituted the Mandatory Inclusionary Housing Act (MIH). This regulation requires that developers who build in neighborhoods or properties that have been rezoned set aside at least 25 to 30 percent of new apartments for individuals of low to moderate income. The idea is that this regulation will support people who would have otherwise been displaced due to the natural increase in rental price associated with the development of a new property. As stated by Elizabeth Capelle, in her article, “The Housing Crisis Is Not Inevitable,” “But whether at the upper or lower end of the market, speculators are united in the view that housing is a financial asset to be built or purchased of maximum profit — not a home to satisfy the fundamental human need for shelter.” However, Samuel Stein in his article, “City Views: When Developers Threaten Bad ‘As of Right’ Projects, Rezoning Becomes Ransom,” argues that “the idea that triggering MIH makes this rezoning some sort of salve to the affordability crisis is a cruel

joke.” He continues: “The most common criticism of MIH is that the affordable units are unaffordable to neighborhood residents.” Stein goes on to attack the policy itself, saying the developers are proposing to use “option 2” of MIH, which demands that the owner of the property should put aside 30 percent of the number of their apartments affordable to the average 80 percent of the median income households. Because the policy is concerned about the average, this allows for developers to spread out rental prices, applying different rates to different units. Furthermore, because typical neighborhood households make approximately 40 percent of the average median income, in the best-case scenario, only nine of the proposed 27 apartments would be available.

Stein makes an important point that part of the problem concerning the development project in Jackson Heights and its negative implications is simply bad policy. He argues MIH is not well thought out and its vague regulations do not do much to help the more impoverished residents. Secondly, he points out that the reason the developers have the leverage to apply for rezoning in the first place is due to the as-of-right law which allows developers to build projects in any way that they wish as long they abide by their regulations. Stein states in reference to the Target developer, “The developer says they won’t build a hotel on the site, but reminded the board that they could. The implication was clear: the developer was using their as-of-right horror show to coerce the neighborhood into accepting an equally harmful rezoning.” It is clear that vague regulations and laws that incentivize development has put poorer citizens and small businesses at a disadvantage. However, it is unclear whether this is simply a gross oversight by city officials or due to a misunderstanding concerning the cause of gentrification in general.

Elizabeth Capelle, in her article “The Housing Crisis Is Not Inevitable,” argues that gentrification and the housing crisis is not inevitable. She claims that city officials believe gentrification and the housing crisis is an inevitable phenomenon due to population growth which naturally drives up rental prices and displaces lower income residents. However, Capelle believes that the real driver behind gentrification in New York City, is not an “imbalance between supply and demand”, but created through development and a phenomenon she calls real estate speculation. Real estate speculation is the idea developers are not concerned with satisfying the need for human shelter but instead view housing as an opportunity to maximize profit. This ideology drives up rental prices and forces out lower income residents. However, because city officials like Mayor de Blasio believe the housing crisis can be attributed to the natural laws of supply and demand, as-

opposed to developers driving up market rates instead of trying to fight and regulate real estate speculation, he has created policies like the Mandatory Inclusionary Housing Act which operate within its constraints. Capelle agrees de Blasio's "market-centric" approach has proved ineffective and provides an alternative solution arguing, "if the city is serious about bringing down housing costs, it has to be willing to acknowledge and take on speculative real estate development." Though intuitively Capelle's suggestion makes sense, she admits that more research is required in order to clearly demonstrate that real estate speculation is the primary cause of the housing crisis.

Ultimately, it is clear that the Target development in Jackson Heights, and the potential residential community that may be built on top of it, will negatively affect Jackson Height's multiculturalism by accelerating gentrification and displacing local businesses and long-time residents. It is still unclear whether there is a perfect solution to the underlying problem of being able to balance incentivizing developers while preserving affordable housing and the heritage and culture of historic neighborhoods. However, it is apparent that city officials have overlooked that the aspirations of developers and urban sustainability are not mutually aligned, and this is reflected in bad policy decisions such as MIH that do not aptly regulate developers. In order to preserve the cultural and diverse demographic integrity of neighborhoods like Jackson Heights, communities must come together and make city officials create policies that confront real estate speculation, protect neighborhoods and their residents, and approach the problem of the housing crisis using more research driven data.



Photo: Queens Neighborhoods United

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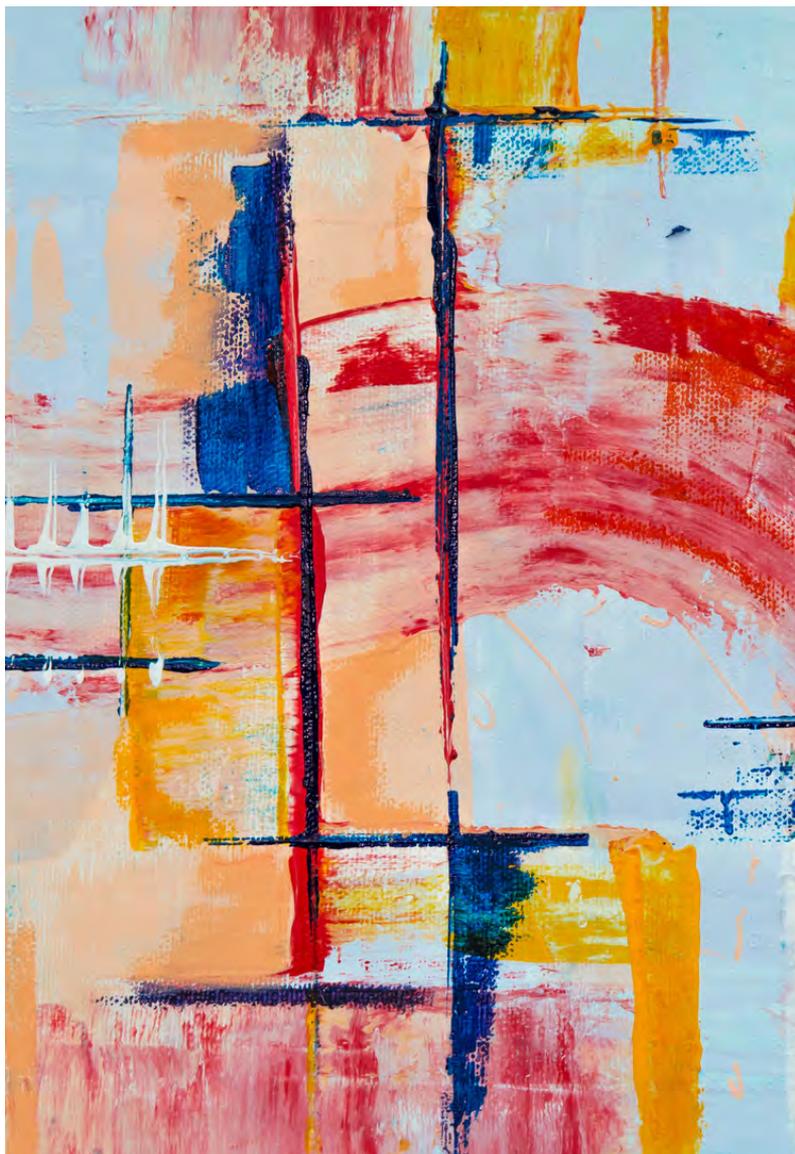
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Photo: Queens Neighborhoods United

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W.E.B. Du Bois, Black America's Conscience

By: Katrice Jenkins

It is my contention that W.E.B. Du Bois's extensive body of work taught African Americans both survival and how to fight for equality with regards to *being* more, *having* more—*doing* more than merely existing. Just as surely as White supremacists used Christianity to validate racism, Du Bois's contributions to African American literature continue to serve as a sociological Atlas for navigating the murky waters that Black people have been forced to travel on, beginning with the Middle Passage. William Edward Burghardt Du Bois was instrumental in the development of socio-political consciousness and empowerment in Black America.

W.E.B Du Bois's path to socio-political awareness and his subsequent quest to enlighten others was fostered by his access to higher education. According to *The Norton Anthology of African American Literature*, the ideologies and theories he developed on race and equality throughout his lifetime pursuit of scholarship for the Black community was born from the notion that ideas and principles were critical to the obliteration of bigotry and inequality (Gates and Smith 679). Norton also cites Du Bois first direct encounter with racism at Fisk University in 1855, and the 'increasing alarm' Du Bois felt in regard to Anti-Black violence in the South. "It was Du Bois genius to realize that to protest the color line most effectively...he had to find ways to make it not merely a social and legal fact but a profound psychological factor in the African American's sense of self and relationship to society" (682). The growth of Du Bois social awareness is analogous to the rebellious spirit that newfound literacy incited in Frederick Douglass when the ability to read opened his eyes to the injustice and immorality of the enslavement of Africans/severity of his oppression. Higher education influenced Du Bois fight for more. Du Bois's published works are the epitome of the African-American adage, "each one, teach one", in that each person should pass their knowledge on to the next generation. His essays and books demanded equality for Africans within the American world that was built on their backs.

The *Souls of Black Folk* is one of the most widely recognized of Du Bois's catalogue of works on inequality and Black empowerment. Additionally, *Souls* offers a more in-depth look at some of the life experiences that led to his becoming the leading African American thinker of his time. In *Souls* opening chapter, Du Bois details a moment during his youth when he first realized he was an outcast amongst the largely White community in which he was raised and educated. While practicing a now anachronistic social custom of exchanging visiting cards with his classmates, Du Bois's token of friendship was rejected. Du Bois came to resent the fact that being smarter, faster, and more talented afforded him nothing; his station, at the bottom in the hierarchy of race remained. Du Bois states, "With the years all this fine contempt began to fade, for the worlds I longed for, and all their dazzling opportunities were theirs, not mine" (687). His awareness went beyond having his 'visiting card' rejected (687). The ostracism he was subjected to in all social circles were the foundation of what would become his most famous and celebrated theory: the theory of double consciousness. Du Bois's theory of double-consciousness imparts the reality of Blacks being forced to view themselves through the eyes of Whites. His theory argues that being African and American inevitably means feeling a 'twoness,' or in his own words, "an American, a negro; two souls, two thoughts, two unreconciled strivings; two warring ideals in one dark body, whose dogged strength alone keeps it from being torn asunder" (689). For African-Americans, double consciousness means that we are always cognizant of how our Blackness is seen through a racist or stereotypical lens by mainstream society. Double-consciousness evokes awareness of how dangerous the simple act of reaching for your wallet can be. A moment of double-consciousness could possibly save a black soldier from drawing his weapon to help subdue a criminal because he'd acknowledge the likelihood of the police officers assuming that he was the criminal. Du Bois's double-consciousness undoubtedly influenced Paul Laurence Dunbar's "We Wear the Mask" and countless other nineteenth and twentieth century African American writers, but it is especially groundbreaking in how it offers Black Americans guidance for survival in our racist society.

Further evidence of the impact of *The Souls of Black Folk* can be found in The American Political Science Review's February 2012 issue. In it, Melvin L. Rogers explores *Souls*' reflections on the American people in his essay "The People, Rhetoric, and Affect: On the Political Force of Du Bois's "The Souls of Black Folk". Rogers surveys how the rhetorical character of *Souls* aimed to broaden America's political and ethnic perspectives in regard to the status of African Americans (188). Rogers's article attests to Du Bois

view of race as 'distinct peoples', each with their own unique offerings to humanity (189). His analysis of *Souls* indicates Du Bois's principle goal in the writing it: to prove that Black people are not inferior, but equal to Whites. As Rogers relates in his article, *The Souls of Black Folk* "embodies the democratic quality of persuasion and affirms the role of contestation central to the aspirational view of the people" (191). America has always been an abysmal economy for the ideals of the moral and socially conscious. And while W.E.B Du Bois wasn't alone in his pursuit of equality for Black Americans, the continued relevance of his philosophical thought is a testament to how important his socio-political awareness is to the African American community.

The Souls of Black Folk is just one of the many remarkable contributions W.E.B Du Bois made to African American literature and to raising the social and political awareness of Black America. Du Bois's *Black Reconstruction in America*, first published in 1935 is another worthy of consideration. Du Bois's *Black Reconstruction* simultaneously addresses the benefits of access to education for Southern Blacks and Whites after the Civil War and the liberties that our racist society has taken in their accounting of the events leading up to the Civil War. Within this text Du Bois also speaks to the efforts of African Americans specifically in the war that ultimately resulted in the abolition of slavery: "When to all this you add a servile and disadvantaged race, who represents the cause of war and who afterwards are left near naked to their enemies, war may go on more secretly and as truly as before the peace" (670). Du Bois's *Black Reconstruction* not only highlights the pivotal role African Americans played in the political and economic triumphs of the South; It also calls attention to the inconsistencies of any narrative that suggests that the enslavement and oppression of African Americans ended with the abolition of slavery.

Claire Parfait's "*Rewriting History: The Publication of W. E. B. Du Bois's 'Black Reconstruction in America'*" details how Du Bois life experience in academia attributed to his decision to write *Black Reconstruction in America*. After Du Bois was initially asked to write the prelude to "The American Negro" for the fourteenth edition of the *Encyclopedia Britannica*, Franklin Henry Hooper, the editor rejected Du Bois's article on Reconstruction. According to Parfait, Hooper fundamentally disagreed with Du Bois's analysis of Reconstruction. He even opted to exclude his entire text when Du Bois insisted that Hooper acknowledge White Historians' history of ascribing the "faults and failures to Reconstruction to Negro ignorance and corruption" (271). This was a defining moment in his life that further proved

the need for an examination of the Reconstruction of America from an African American perspective. Additionally, Parfait highlights the outline Du Bois provided for the basis of *Black Reconstruction* in his letter to publisher Alfred Harcourt. In regards to the argument of privileged Whites that newly freed negroes were “largely criminal, impoverished, averse to work and too ignorant and shiftless to take care of themselves or families” Du Bois posed the question, “What else could possibly result from 300 years of slavery?” (272). Like *The Souls of Black Folk* W.E.B. Du Bois’s *Black Reconstruction* was both a rebuttal of the attack on the character of Blacks and a blueprint for how to circumvent the inaccurate narrative of African Americans being inferior to Whites, and therefore unworthy of parity and equality.

It’s important to recognize that W.E.B Du Bois’s contributions to the African-American community aren’t limited to the books and articles he published. Du Bois is also one of the founders of the National Association for the Advancement of Colored People, a civil rights organization that was formed in the U.S in 1909. In W.E.B Du Bois, *Black Radical Democrat*, Manning Marable writes of the NAACP’s beginnings as an alliance between Blacks and Whites, without Blacks positioned as ‘beggars’ and Whites as ‘givers’ (73). Du Bois’s dogged pursuit of social, educational and economic equality is what distinguishes his program for Black empowerment from the program of Booker T. Washington, another prominent African American activist during his time. Marable’s *Black Radical Democrat* conveys Du Bois’s reputation as a “highly sensitive intellectual with a fine antenna for any racial slight, real or imaginary” (80). Du Bois was unwilling to compromise on any issue that involved racial discrimination or the suggestion that Blacks should defer to Whites. Booker T. Washington’s program for African American empowerment, however, encouraged Blacks to compromise. In *Souls of Black Folk* Du Bois depicts Washington’s educational program as a promotion of compliance. Per Du Bois’s assessment, Washington represented “in negro thought the old attitude of adjustment and submission”. According to Du Bois, Washington’s ambition towards improving the economy of the Black Community became “a gospel of Work and Money to such an extent as apparently almost completely to overshadow the higher aims of life” (Norton 698). Washington’s focus on the best way to achieve economic growth within the Black community was detrimental to the upward mobility for African Americans in other mediums within American society. Du Bois wasn’t against working with Whites. Marable’s *Black Radical Democrat* isn’t the only biography that highlights the fact that all of the national officers elected during the NAACP’s inaugural

conference were White except Du Bois. The principal difference between the ideologies of Booker T. Washington and Du Bois's programs for African American empowerment is that Du Bois's agenda didn't allow for compliance. Du Bois saw no reason for Blacks to stay in their place, the place that White Supremacy pigeonholed them into, in the hope that this would result in Whites rewarding their subservience. Du Bois demanded equality on all fronts.

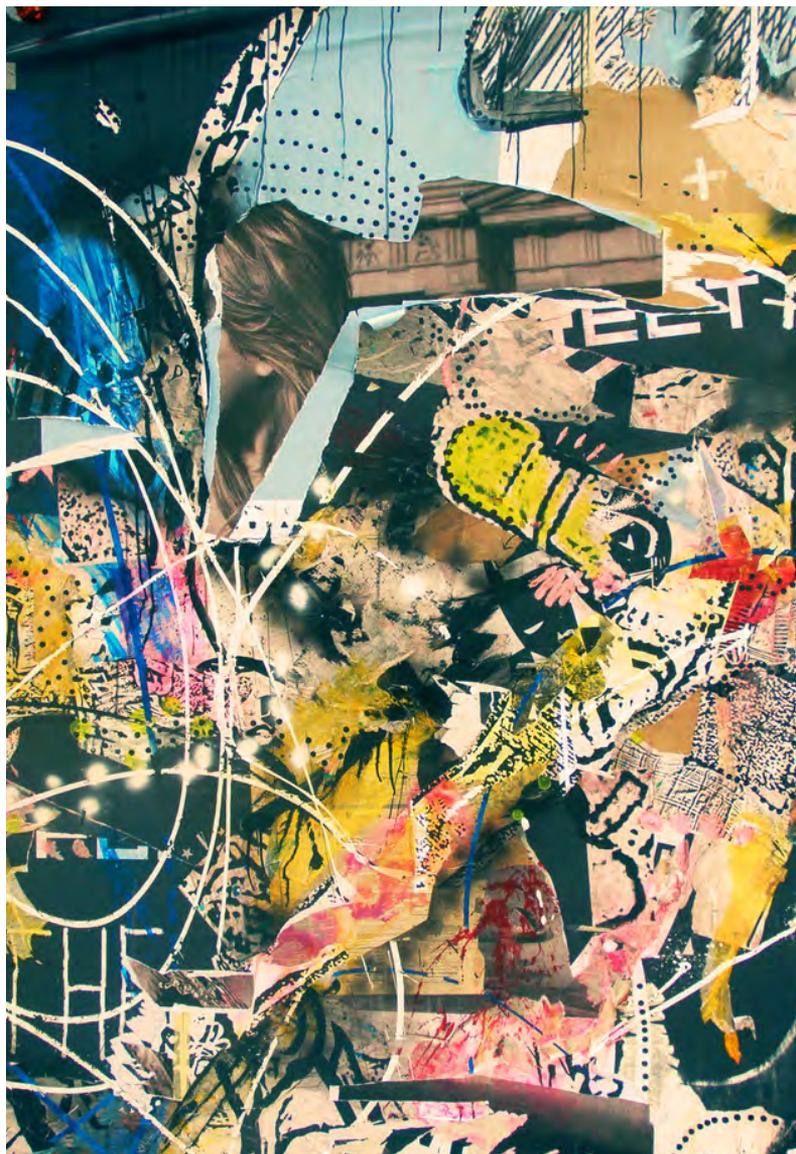
W.E.B Du Bois's socio-political activism was the lens needed to see beyond the mask America has been wearing for centuries. Even as the social media era shows no signs of slowing down, privileged Whites and the otherwise naïve members of America's disenfranchised communities continue to ignore the prevalence of White supremacy. White supremacy didn't end when slavery was abolished. Any narrative that suggests otherwise is easily discredited by the emergence of Jim Crow and its ilk. America's masquerade began with the Reconstruction after the Civil War. And the prolonged systematic oppression of African Americans is proof of the asterisk that was inked in next to the thirteenth amendment. Du Bois's sociological contributions to the African American community (through his literature and social activism) have helped his people thrive and survive long enough to continue the fight for all of the rights that constitute actually living, and not merely surviving.

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The Broken Democratic Crisis

By: Nigina Ortikova

The end of the Cold War era marked a significant turning point in the field of political science as it introduced an authoritarian populism to contemporary governmental structures around the world. Authoritarian populism is a significant challenge to democratic politics as it expanded the use of undemocratic strategies by world leaders to manipulate citizens in order to gain political power. A Dutch political scientist and an author of the book "Populism", Cas Mudde, defines populism as a political strategy in which government leaders claim to directly represent the ordinary people who feel they are not adequately represented by other preexisting governmental institutions. Mudde emphasizes the dangers of populist politicians that divide societies into two groups: "self-serving elites" and ordinary people, which creates a fundamental opposition (Mudde 2:03). Populism is one of the political strategies that significantly changed the entire process of democratic election processes by allowing politicians to scheme people with unethical and undemocratic tactics to win the popular vote.

The people of the 21st century are feeling overwhelmed as well as threatened by fast moving technological innovations and globalization. Barry Cannon, an Irish sociologist lecturer at NUI Maynooth, explains that populist leaders rise when income inequality increases and social mobility decreases, leading people to feel isolated and victimized by their own governments. This will lead to the decline of citizens' trust in government and political institutions that motivates people to look for alternative options that can secure their economic and social privileges.

Populist leaders control people's feelings of victimization by claiming to be their voices in order to exclude the people who populists believe to be the root of economic disparity. Populist leaders often use scapegoating to divide the nation that fuels the level of extreme nationalism as well as to weaken the constitutional and non-constitutional institutions. It undermines the institutional democratic norms of liberal democracy (Cannon 479). Dalibor Rohac, a research fellow at the American Enterprise Institute, claims in his

article for The Center for American Process that populism in the 21st century causes significantly high “rising tides of exclusionary and authoritarian populism” that claim to protect people from various so-called ‘out-groups’.

This essay examines the pre-conditions which give rise to right-wing authoritarian populist leaders with some historic references as well as references to the 2016 presidential election in the United States. It also presents some pro-populism arguments and analyzes the different strategies used by right-wing authoritarian populist leaders to weaken liberal democracy.

When analyzing the preconditions that lead to the mass appeal of populism, it's important to examine the economic aspects that influence them. For example, in the U.S. context, according to the reports of Dr. Rohac in his article “Drivers of Authoritarian Populism in the United States,” the rise of authoritarian populism “has gone hand in hand with the decline of trust in government and liberal democratic institutions; the decline in lawmakers’ responsiveness to the public’s expressed policy preferences; and the rise of ideological polarization” that brought a victory to a populist leader like Donald Trump (Rohac 1).

The bitter reality of discrimination has always been a part of the American experience and history has proven that people of white racial background enjoy being privileged in every aspect of the nation by exploiting other races and minorities through slavery, segregation, colonialism, etc. The rapid shifts on the diversity of population in the United States is increasing the level of unemployment. Technology is slowly replacing workers in the capitalistic system as well as creating a lack of resources because of global warming. American politician Dr. Julie Novkov highlights in her article “How Do We Solve a Problem Like the Donald? The Democratic Challenge of Trump Supporters and the Politics of Presidential Removal” the effects of having the first African-American president, Barack Obama, which transformed American values. Unexpected change in politics as well as the rise of diversity led some white American people to feel threatened of losing their privileges. This condition made it very easy for manipulative media sources and populist leaders like Donald Trump to come to power with radical views. The illusion of the white race being underrepresented attracted beliefs about how minorities and democrats that were making very liberal laws allowed immigrants to come to the United States and are to blame for their suffering. Dr. Julie Novkov explains this crisis as:

Obama presidency reflected an open betrayal of traditional American values of hard work, meritocracy, taking turns, and fairness, with women, immigrants, people of color, and the undeserving poor cutting in line ahead of them (Novkov 441).

The Obama presidency increased the insecurities of some white people which led them toward false promises of a demagogue during the 2016 election. Conservatives overwhelmed with liberal policies had been pushed into politics in the last 20 years. It motivated them to want more radical leaders who can protect them from changes, even if it causes them to abandon democratic values. According to Dr. Yascha Mounk, author of the book "The People vs. Democracy," right-wing populist leaders target racism to use against ethnic and religious minorities as a tool to attack basic democratic norms of liberal democracy. Racist strategies also provide populist leaders the support of white nationalists (Mounk 200). These feelings of helplessness, hopelessness, and anger are targeted by popular leaders to gain political favor, which create the perfect pre-conditions for populist leaders to categorize people in an attempt to exclude minorities. These conditions played important roles having the first right-wing Populist president of the United States during the 2016 presidential election.

Furthermore, Novkov mentions that the populist leader Donald Trump himself cannot be credited for the beginning of radical conscious aggregation against liberal ideas (immigrations reforms, LGBTQ rights, abortion laws, etc.) and the public "political emergence of this phenomenon"; however, Trump's campaign, election, and governance style strongly supports these radical movements. He divided the nation in terms of race, fueled white supremacy, and supported racism as the president of the United States (Novkov 450). Trump was able to accomplish all of them because the idea of democratic gatekeeping between politicians failed.

Harvard University political scientists Steven Levitsky and Daniel Ziblatt define gatekeepers in their book "How Democracies Die," as politicians' and democratic institutions' moral responsibilities that serve a gatekeeping function to keep unfit candidates off the ballot and out of the office. The history of gatekeepers is traced back to when the Founding Fathers did not trust the people's ability to judge candidates fitness for office. According to Levitsky, even Alexander Hamilton warned of popularly-elected leaders that play with people's fear or ignorance to win elections and rule as "tyrants" (Levitsky 39). Donald Trump is the first president in the recent history of United States to use openly inappropriate, racist language and breaks the

moral and ethical norms of democracy in terms of representation of the people. Today, the electoral college system and political parties serve as democratic gatekeepers, and they are responsible for keeping demagogues out of office to prevent authoritarian regimes; yet, the fact that Donald Trump was elected reveals the broken democratic crisis and the failure of democratic gatekeepers in the United States (Novkov 449-450).

Political scientists also admitted that Donald Trump would be very far from politics if he was running for a presidency 20 years ago where the United States used to have a better system of democratic guardrails such as courts, independent judges, and The United States Office of Government Ethics (USOGE) where they would not tolerate any racist comments. Regrettably, the guardrails are weakened. Unfortunately, Republicans and Democrats have become increasingly loyal to their party, thus elevating aggression towards the opposing party. The election process became a standard two-party competition, with Republicans supporting Republican candidates and Democrats backing the Democratic candidate. The guardrails have become obsessed with power and competition with each other; they barely care about having an ethical president as long as it is a person that represents their party. Donald Trump exhibited clear all-authoritarian behavior in the first year of presidency, such as questioning the credibility of law enforcement and independent judges who are the most important parts of the checks and balance system to make sure democratic norms won't be broken (Levitsky & Ziblatt 177-179). These ideologies played a significant role in bringing a far-right authoritarian populist leader like a Donald Trump into power in the United States.

Despite many arguments on the dangers of populist strategies to democracy and human rights, there are also some pro-populist arguments. Scholars like Jan-Werner Muller, who actively criticize all "lefties" that have been exaggerating and changing the whole concept of populism, believes populist ideas keep the checks and balance system of democracy. First of all, he argues that populism is about representing the majority where it shows the frustration of the people from the old broken democratic system (Werner 485). As discussed above, populism occurs when people experience socio-economic crisis and feel isolated by their own government and in democracy, people should not feel they are being excluded by the government. An example of such can be made from how some white people felt during Barack Obama's presidency. White people felt they were not being represented and people of color and immigrants were getting all the resources undeservingly, which aroused anger. More and more government

leaders are failing to provide equal resources for all citizens and follow democratic concepts. As society is rapidly becoming more diverse, more minorities are feeling isolated from the system (Mounk 58). Populists speak for the majority who have a common dissatisfaction from the previous government. The population's mass dissatisfaction alarms people and the government leaders about the failings of liberal democracy. Realizing these problems and working towards a solution will be ideal to stop radical populism from spreading. Populism puts forward the issues that democracy promises, but are not granted in real life while giving back hope and resilience to the nation (Werner 484). Moreover, some believe populism strengthens the checks and balance system by exposing the existing weaknesses of the previous governmental structures.

Secondly, Werner points to the conditions under which populist leaders rise and argues that not all populism is bad. He mentions the populist leader Vladimir Lenin as one of the great example for populist leaders of history who fought back to the political repression and mass killings of working-class people under the Tsar monarchy. Lenin was able to uplift the nation to fight back against the oppressions of the Tsar that led to the Great Russian revolution and saved millions of oppressed people. Lenin achieved unity of the nation and made a change because of his populist ideas against the monarchy (Werner 483-486).

However, history has proven that even Lenin's revolutionary movement has led to an authoritarian regime and failed to provide the equality that it promised in the beginning. Populism has always failed and instead created more inequalities and economic instabilities rather than solving them. According to Cannon, when populist leaders come to power, they lack adequate skills to solve social and economic problems. Instead, they concentrate on dividing nations by scapegoating certain group of people for their failures to maintain their personal power and control over others (Cannon 485). Populists promise more than they can actually do and make people believe in the illusion of simple solutions to solve problems. One such example is if jobs are moving abroad, the solution is to simply put a ban on other countries from trading their products. If immigrants are taking over your country, you must build a wall, and if terrorists threaten you in the name of Islam, you must simply ban the Muslims. Populist leaders make it obvious for the crises to be solved. For the economy to resonate again, people have to give the power to populists who can get rid of all traitors and implement common sense solutions (Mounk 41).

Cannon also argues that the idea of populism is “conceptually loose” which enables populists to change the concept of it depending on the populist leader’s character, background, and their message. For example, Donald Trump and Vladimir Lenin are both portrayed as populists, but they have chosen different group of people to represent. Trump claims to represent hard-working American people that basically underlines white Americans while Lenin represented the poor, underprivileged, and working-class people under the Tsar regime. They are both populist leaders but “their rule will take a characteristic shape and one that is in fact within the logic of the major public arguments populists put forward” (Werner 484). This looseness gives power for each populist to use the ideology and corrupt it. The right-wing authoritarian populism has become particular threat for liberal democracy as it has increased biased stereotypes about certain group of people as well as exclude them from representation, failed even their own supporters while they cannot solve the problems they promised in the beginning of their campaigns.

Steven Levitsky and Daniel Ziblitz show that there are certain common strategies that every populist leader uses to keep their regime, to divide the nation into factions such as attacking their critics in outrageous terms-as enemies, as traitors of the nation, populist leaders polarizes society by creating the climate of panic, fear based society that led to the “mutual distrust” between the government and people, and manipulate the independent government agencies and corrupt them or control them (73-76). For example, Donald Trump threatened his presidential opponent Hillary Clinton to be jailed because of her email scams, openly labeled all news media that are critical to his actions such as CNN, BBC as “fake news” to undermine their credibility and to break the public trust towards independent agencies. These allegations towards his critiques threaten the checks and balance system and it is one of the alarming behaviors of populist leaders in transition to the radical authoritarian leader. The second method is to keep the fear-based society as soon as possible until populist leaders can get the power of controlling all government institutions such as law enforcements, courts, independent judges, FBI and etc. It has been two year since Trump got elected but he still not stopping from scapegoating, name calling minorities and immigrants every economic problem the nation is facing right now. But in reality, it is not immigrants who are dropping the employment rate but the corporations, 1% rich people who almost own almost 40% of the country’s wealth (Mounk 218). As soon as populist leaders can find someone to blame for problems and point their finger at them, they can

distract people from revealing the true faces of the far-right authoritarian populist leaders.

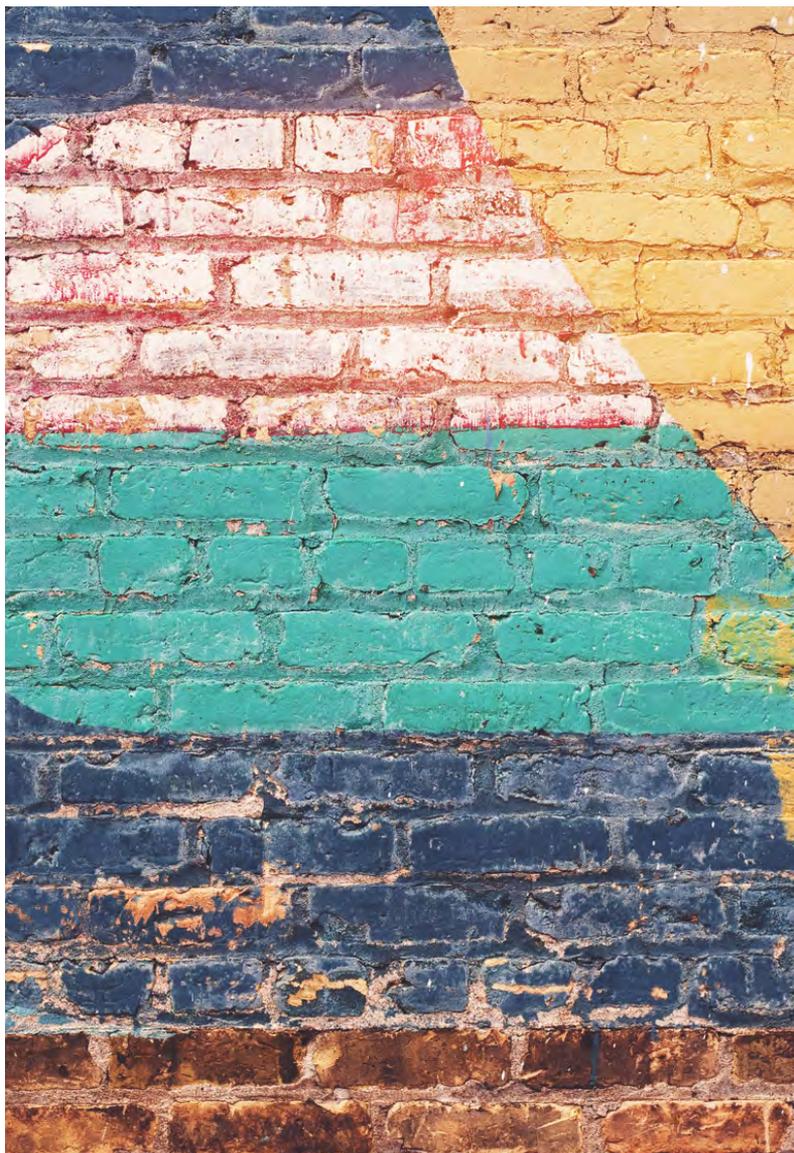
Most of the time far-right supporters choose violence and racism to express their feelings and political parties that want the majority's vote try to change their policies to adjust for these horrible demands. As Federalist#10 emphasizes, the main way to keep people from rebelling against the system is for the government to divide people into factions so that they can never unite. Authoritarian Populism is the perfect system to create these factions. It is a serious threat to democracy and civil liberties because it has shifted the whole idea of democracy from equality for all to radical nativism, which undermines human rights.

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Populism: Liberal Democracy's Self-Perpetuating Problem

By: Monami Nagai

In its purest form, populism is an ideology that emphasizes the divide between ordinary people and their needs versus an elite group that operates solely in their own interest. Although, as political scientist Cas Mudde states, the “thin-centered,” or flimsy, nature of populism means it can be left-leaning or right-leaning based on the “host ideology,” or main belief system, of its leader, the term is often used as a substitute for what is more accurately known as right-wing authoritarian populism (12:45). Specifically, this right-wing authoritarian form of populism is an ideological, political movement that weakens constitutional and non-constitutional democratic institutions by distracting from and exploiting the institutional loopholes of liberal democracy. The dialectical relationship between authoritarian populist ideology, its materialization in democratic institutions, and the discourse that reproduces and reinforces its own ideology proves that inequality was built into the very fabric of liberal democracy, and the ideal form of liberal democracy will continue to fail, or rather, never be realized unless that inherent inequality is addressed.

The rise of right-wing authoritarian populist ideology is the first sign of an inherently problematic liberal democracy. Within a liberal democracy, there are two ways to analyze the rise of populist ideology. The first is to identify the critical modern phenomenon that causes it. The second is to determine what, in the original design of liberal democracy, allows it to flourish. Examined together, these analyses provide a clear picture of how the self-perpetuating cycle of right-wing authoritarian populism forms in the first place.

The primary modern phenomenon that causes the rise of populist ideology is increasing financial inequality and insecurity. As political scientist Yascha Mounk argues, surveys show a clear correlation between declining democratic representation and an increase in the disillusionment with democracy (5). According to Mounk, this is due to citizens believing their votes have no real effect on what he calls “undemocratic liberalis[t]” and “increasingly unresponsive” governments (13). In other words, people believe they are not being heard by their governments, and so democracy is

no longer desirable or essential to them. This means that there is a space that needs to be filled for the citizens that want to have a voice.

How then do populists claim that space? Mounk states that populists often gain favor with people by appealing to their sense of “nostalgia for an economic golden age” (216). He is referring to a longing for a time when every new generation could expect a higher standard of living compared to the previous generation. As with every other aspect of right-wing authoritarian populism that will be discussed in this essay, this idea of wanting to return to a time when the system was fairer, initially appears harmless enough. However, the truth is that the system never was better or more equitable. As Mounk points out, “Though liberal democracies claim that they treat all citizens equally, they fail to live up to this promise with disheartening frequency,” and “In every country...some significant form of discrimination exists” (210). This means that an acceptance of a right-wing authoritarian populist leader’s appeal to return to a better time is a call for a return to the political and economic disenfranchisement of minorities. However, those that have accepted the populist leader’s invitation have already bought into the idea that there was a better time. Thus, the ideology of right-wing authoritarian populism is born.

If declining representation and growing inequality beget populist ideology, it becomes necessary then to discern how populist ideology flourishes within a liberal democracy. In the case of the United States, the truth is that the Founding Fathers built a mechanism of inequality into the Constitution as a means to protect the outnumbered. As said by either James Madison or Alexander Hamilton in the Federalist Papers, in the United States, “society itself will be broken into so many parts, interests, and classes of citizens, that the rights of individuals, or of the minority, will be in little danger from interested combination of the majority” (Federalist #51 9). In other words, the Founding Fathers wanted to ensure that people would be divided among so many interest lines that they would not be able to coordinate against or impose their will on smaller groups. By creating many factions and “keeping the people at bay” through a system of voters electing their representatives, the Founding Fathers created a minority elite ruling group (Mounk 55). In the case of the United States, it seems that the original framework of liberal democracy is operating as it was designed in the sense that it continues to promote inequality and protect the elite. This, in turn, creates the perfect breeding ground for populist ideology. However, it seems this very creation of liberal democracy only serves to highlight what the Founding Fathers intended to hide from the working class. As political scientist Jan-Werner

Müller puts it, “it’s as if we had a bad conscience about the unfulfilled hopes of democracy and populists remind us that we have not just come to accept the fact of broken promise of democracy...but also prefer to forget that the promises were made in the first place” (484). This unexpected truth among the many lies of right-wing authoritarian populism is most likely what keeps the ideology going.

If declining representation and growing inequality beget populist ideology, it becomes necessary then to discern how populist ideology flourishes within a liberal democracy. In the case of the United States, the truth is that the Founding Fathers built a mechanism of inequality into the Constitution as a means to protect the outnumbered. As said by either James Madison or Alexander Hamilton in the Federalist Papers, in the United States, “society itself will be broken into so many parts, interests, and classes of citizens, that the rights of individuals, or of the minority, will be in little danger from interested combination of the majority” (Federalist #51 9). In other words, the Founding Fathers wanted to ensure that people would be divided among so many interest lines that they would not be able to coordinate against or impose their will on smaller groups. By creating many factions and “keeping the people at bay” through a system of voters electing their representatives, the Founding Fathers created a minority elite ruling group (Mounk 55). In the case of the United States, it seems that the original framework of liberal democracy is operating as it was designed in the sense that it continues to promote inequality and protect the elite. This, in turn, creates the perfect breeding ground for populist ideology. However, it seems this very creation of liberal democracy only serves to highlight what the Founding Fathers intended to hide from the working class. As political scientist Jan-Werner Müller puts it, “it’s as if we had a bad conscience about the unfulfilled hopes of democracy and populists remind us that we have not just come to accept the fact of broken promise of democracy...but also prefer to forget that the promises were made in the first place” (484). This unexpected truth among the many lies of right-wing authoritarian populism is most likely what keeps the ideology going.

Once the ideology takes hold, right-wing authoritarian populist leaders may find themselves coming into power. At this stage, their willingness and ability to fundamentally alter or eliminate liberal institutions further highlights the intrinsic deficiency of liberal democracy. Disturbingly, authoritarian populist leaders can begin to dismantle constitutional institutions. According to Steven Levitsky and Daniel Ziblatt, this “assault on democracy” happens almost “imperceptibly” and under “a veneer of legality” (77). They can now

alter the government to their own ideological specifications. Consider Hungarian Prime Minister Viktor Orbán's process of eliminating opposition in his government. First, he conveniently found himself needing to fill several open judicial seats with sympathizers when he legally lowered the age of retirement for judges (Mudde 57:40). Then, he increased the number of judges on the court, thus creating more seats for him to fill with sympathizers (Mudde 57:55). Finally, his friend purchased and then subsequently shut down the final opposition newspaper (Mudde 58:25). Orbán's brazen subversion of liberal democracy shows how easily it can crumble within its own framework.

Right-wing authoritarian populists can also disrupt non-constitutional institutions. Again, in the United States, Donald Trump is an excellent example of how a far-right authoritarian populist leader can reshape institutions around populist ideology. According to Mudde, "media structure is much more favorable towards populists" because media outlets have given up their earlier roles as the responsible "gatekeepers" of what news is released to the public in favor of chasing viewership numbers, and populist leaders are the perfect fodder (44:30). The capitalist nature of media outlets within liberal democracy has left them vulnerable to right-wing authoritarian populism. Mudde also explains that Trump "understands [the media] way better than anyone else" and that he has managed to continually and expertly manipulate the media by forcing the media to continually talk about him (46:00). Again, Trump has successfully used a liberal democratic institution to legitimize and reinforce his ideology.

The final dialectical piece of self-perpetuating right-wing authoritarian populism within liberal democracy is discourse. Both the authoritarian populist discourse itself and the political discourse that seeks to understand populism are equally responsible for reproducing and reinforcing right-wing authoritarian populist ideology. One particularly notable example of this phenomenon is Ronald Reagan's creation of the mythical "Welfare Queen" (Levitsky 228). In this case, Ronald Reagan created a false narrative ("minorities are cheating the system") that created an ideology in terms of the public perception of welfare programs that, then, allowed him to cut spending on these programs. To this day, welfare is a "pejorative term in America" (Levitsky 228). As noted by all of the political scientists mentioned in this essay, Trump constantly tells blatant lies that support his agenda. It is disturbing to think that the liberal democratic system is susceptible to all of them. And yet, as the system stands, discourse is easily manipulated without the need for technicalities or loopholes.

That said, political scientist Barry Cannon's point that talking about populism is in and of itself a part of the problem may be the most surprising and useful theory on how a defective liberal democracy can stop the dialectical cycle of right-wing authoritarian populism. As demonstrated throughout this essay, populism is a symptom of inequality that exists long before an authoritarian populist comes to power. Cannon contends that the political phenomena usually associated with populism are symptoms of what he calls "the crisis of inequalities" (479). To Cannon, populism is "an intellectual movement that prioritizes the protection of polyarchy over the eradication of the very inequalities, which give rise to these variegated political phenomena" (479). In other words, Cannon is saying that worrying about populism perpetuates the causes of inequality because it is merely a distracting symptom of the actual disease that plagues liberal democracy.

Here, it should be stressed again that inequality precedes populism. Although unintentional, when political discourse focuses on populism, it dramatically distracts from liberal democracy's failings because it falsely elevates right-wing authoritarian populism to mean the opposite of liberal democracy. As Mudde says, "the problem is, populism, when successful, often leads to anti-populism" (52:30). Müller's essay demonstrates why this is problematic: Although he seeks to clarify and constrict the application of populism, by the end of his essay, he concedes that he can offer no solution on "how to conduct oneself politically vis-a-vis populists" and that this runs the risk "that anti-populism becomes structurally like populism itself: because they wish to exclude, we exclude them" (491). In this context, because liberal democracy's answer to populism is anti-populism, it further legitimizes the authoritarian populism by paradoxically becoming illiberal and undemocratic. Mounk's solution for this polarization is to address societal inequalities through implementing inclusive policies that will "reduce instances of discrimination" (211). Although it is only a suggestion of what should happen rather than how it can actually happen, the fact that it addresses the inequality in liberal democracy rather than just reacting to authoritarian populism itself makes his approach promising. If more political scientists head in this direction, liberal democracy may be able to be rescued.

In conclusion, the rise of a right-wing authoritarian populist leader fundamentally changes liberal democratic institutions by subverting them. The authoritarian populist leader achieves such destruction by manipulating three mutually reinforcing tools within the technical rules of liberal democracy: 1. He uses right-wing authoritarian populist ideology to court the

losers or perceived losers, of liberal democracy; 2. His ideology informs the changes he invokes in constitutional and non-constitutional institutions; 3. His ideology and the materialization of it creates a false discourse that serves to reinforce further implementations of his ideology and institutional changes. He is further supported by a political discourse that inadvertently hides liberal democracy's failures. Right-wing authoritarian populism falls into this dialectical cycle because the inherent inequality in liberal democracy allows it. That said, the existence of right-wing authoritarian populism as a symptom of a broken liberal democracy may be the catalyst needed to repair the democracy. As Mudde puts it, "populism often asks the right questions but gives the wrong answers" (1:00:45). Therefore, the challenge for liberal democracy is to find the correct answer that restores its commitment to the equality of all people.

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Malicious Neighbor Policy: How the United States Overthrew the Guatemalan Government

By: B. Joseph Ferree

In the early 1950s, the United States secretly organized a coup d'etat in Guatemala, replacing a democratically-elected government with a brutal dictatorship. Although surreptitious military operations stood in stark contrast to the former Good Neighbor Policy, the Cold War-era government used covert actions to keep economic and political authority over Latin America's struggling democracies. As was the case in 1952, when President Árbenz of Guatemala began to enact a series of new policies to wrest away land and control from the grips of the United Fruit Company, an American enterprise that had collaborated with Guatemala's former dictators to dominate the country. In response, declassified documents show that the CIA, in one of its many shadowy interventions in the decades that followed, overthrew the government of Guatemala in a bid to eradicate possible communists and protect American industrial dominance. Betraying every tenet of democracy, the United States government installed and legitimized a dictator who would be friendly to American interests and economically supported him as he tortured and murdered thousands of his people.

By the 1950s, the United States government and the United Fruit Company (UFCO) both had a long history of intervening in Guatemalan affairs. In his book, *Inevitable Revolutions: The United States in Central America*, Walter LaFeber discusses how the United States had historically used its economic and military might in order to keep Guatemala and its surrounding countries subservient to its interests – maintaining an imperial dominance and control without an official colonial presence (LeFeber 17). The UFCO supported and benefited from the repression of the Guatemalan people and grew to become the largest landowner in the country. By the time of the coup d'etat of Árbenz's government, UFCO controlled 42% of the nation's lands, the vast majority of which remained unused. UFCO increased its holding significantly during the reign of Jorge Ubico, who ruled over Guatemala with a military dictatorship that lasted from 1926 to 1944. UFCO bribed Ubico with millions of dollars to secure massive tax reductions and an enormous second plantation that granted them both sole access to the Gulf

port of Puerto Barrios and a monopoly over the country's railroads and power stations (LeFeber 78). These ill-gotten gains were considered legitimate by the United States, but seen as contentious in Guatemala. Working-class people felt that their country was being mercilessly exploited by foreign interests and a profiteering upper-class.

In 1944, Guatemala went through a democratic revolution and a free election placed José Arévalo in power. Arévalo, a self-described "spiritual socialist," served as a transitional figure between the military dictatorship of Ubico and the radical government of Árbenz. Hoping to encourage independent subsistence farming, Arévalo created the Law of Forced Rental in order to force oligarchs to provide land at a low rate to peasants, a project that foreshadowed Árbenz's more radical law reformation policies. By 1950, in the midst of America's Red Scare, he created "a social security system, a labor code that allowed strikes and union organizing, and a central bank." (LeFeber 113). In a move that worried the United Fruit Company, Arévalo arrested employees of the company-owned railroad for trying to break up a new labor union. UFCO did not have the same sway over Arévalo as it had with Ubico and it the company petitioned the State Department to intervene, waving the red flag of communism at the Arévalo administration. LaFeber believed the State Department was constrained by the Good Neighbor policy and could not officially (overtly) intervene in Guatemalan domestic affairs, but was increasingly worried about communist influence. Refusing to wait for the Truman Administration to take matters seriously, UFCO took matters into their own hands.

According to an internal CIA review of its covert operations in Guatemala, the UFCO began a relentless public relations campaign to firmly associate communism and Guatemala in the minds of the American public. The company sent reporters from *The New York Times*, *Chicago Tribune*, *Time*, and *Newsweek* to write on communist activities in Guatemala (CIA #0000134974 10). One New York Times article from July 1950 detailed rumors of communist leaders at a Cabinet meeting with Arévalo in connection with recent protests by railway workers. The article surmised that meeting with communists raised the possibility that his government was considering violent means to eliminate their adversaries. Closer to the national elections, a February 1951 article titled, "Guatemala Facing Peril of Dictator", reported that national labor unions would be supporting Árbenz for the presidency, warning of a future "dictatorship of the proletariat" (Calhoun 5). As the Cold War escalated globally, these reports were damning. The Guatemalan government could refute claims made by American media, but

they lacked the access and experience to participate in a media war. UFCO took an aggressive step further by secretly sending money and arms to the true future dictator of Guatemala, Castillo Armas, preparing him for the coup to come (CIA #0000134974 10).

In 1951, Jacobo Árbenz assumed the presidency and continued the social reforms of Arévalo. More liberal than his predecessor, he aggravated relations with Washington by legalizing the Communist Party. Árbenz himself was not a communist but readily accepted any support in his project to lift Guatemala out of poverty. Although communists had positions within the government, his stated goal was to transform the country into a “modern capitalist state.” His reforms were far-reaching and threatening to American businesses, which had dominated Guatemalan politics for decades. Dwarfing Arévalo’s Law of Forced Rental, Árbenz passed a series of laws in 1952 that would “eliminate all feudal type property,” taking away land for oligarchs and foreign companies and transferring it to hundreds of thousands of impoverished families. Rural laborers and urban workers were given federal protections and families were given bank credits and technical aid. Árbenz moved to break up UFCO’s monopoly and redistribute some of its holdings. The government would focus on confiscating UFCO holdings from its second plantation, Tiquisate, which former dictator Ubico had given to them on a 99-year concession. LaFeber maintains that Árbenz was not a secret communist, as many Americans claimed at the time, but a capitalist, and that Guatemala had always supported the United States politically against communist countries. Árbenz instead saw the move as reparations for the decades of virtual slavery endured by rural laborers. LeFeber argued the purpose was obvious, “to break the country’s dependence on the oligarchy and foreign investors” and to free laborers from having to import American food (LeFeber 116). Regardless, the State Department saw land redistribution as an unforgivable violation of private property and took steps to overthrow the Árbenz government.

President Truman was slow to respond to the growing confrontation between Guatemala and the United Fruit Company, but the latter had done well keeping the drumbeat of imperialism well within earshot. Truman initially was concerned that the Guatemalan government would accuse them of violating the Non-Intervention Agreement and turn other Latin American countries against him. Publicly, his administration extended economic control by continuing to block any sale of arms, discourage loans to the country, slow down aid, and halt construction projects (CIA #0000134974 11). The CIA, however, had spent significant resources devising plans to

remove Árbenz. Declassified CIA memos from January 1952 show that the CIA was making lists of Guatemalan communists that should be “eliminated” in the event of a successful anti-communist coup. A separate list was made for communists and communist sympathizers to be incarcerated, despite the fact that communism was not illegal (CIA #0000135862 1). The CIA wanted to bring the Red Scare to Guatemala, but it was not until the Agrarian Land Reform Act was enacted that the United States Government gave its approval for the CIA’s coup d’etat. The time between the enactment of land reform and the President’s approval, one month, speaks to the influence and power of American business. Guatemala was not being punished for having a political relationship with the Soviet Bloc, but for not capitulating to U.S. demands.

In 1953, workers themselves moved to strike the UFCO-owned electric company and railroad, leading Árbenz to place them under state control. The UFCO lobbied the incoming Eisenhower administration to accelerate the CIA’s operation; John Peurifoy, who made a name for himself tracking down communists and homosexuals within the State Department, was appointed the new Ambassador of Guatemala (LeFeber 120). His actual role, however, was to facilitate the coup. In a State Department memo, Peurifoy detailed a conversation he had with President Árbenz during a private dinner attended by them and their wives. President Árbenz tried in vain to focus the conversation on the United Fruit Company and how it had avoided taxes for decades while underreporting the value of its land. Peurifoy, however, would have none of it. Instead, he told the president that relations between the two countries would not improve until communists were suppressed and censored in Guatemala. When the president insisted that the United Fruit Company was funneling money to Castillo Armas, Peurifoy feigned incredulity and steered the conversation back to communism. In his conclusion sent back to Washington, he stated, “I am definitely convinced that if the President is not a communist, he will certainly do until one comes along.” He recommended that they act, and quickly (Peurifoy and Árbenz 2). Although the conflict had begun between Guatemala and the United Fruit Company, the State Department had its own agenda. Recovering UFCO’s land and dominance over the country would be the result of annihilating their political opposition - not just individuals, but an entire mindset. Nothing less than the complete elimination of the communist party and a blind respect of private property would have satisfied Peurifoy.

In 1954, the Guatemalan government confiscated 173,000 more acres of UFCO land. The United States was ready to act. To execute a coup d'etat, President Eisenhower authorized the Central Intelligence Agency to spend upwards of \$7 million training a small force of a few hundred Guatemalans on a UFCO plantation in Honduras (LeFeber 120). According to an internal FBI report, Árbenz had learned of the plot by the CIA and knew the attack was imminent. In a bid to defend the country, the Árbenz government purchased arms from Czechoslovakia, a country outside of American control, lending credence to CIA suspicions of a global communist collusion. Led by Castillo Armas, when the "rebels" finally attacked in June they initially failed to incite an uprising. Eisenhower, intent on saving his plan, sent in planes through a third party to drop dynamite on Guatemala City, spreading terror and making Árbenz believe the opposing forces were much larger than they were. Árbenz initially transferred presidential powers to a liberal army colonel, but Peurifoy was on hand to make sure powers were transferred to Castillo Armas, completing the coup d'etat. UFCO recovered its land and Árbenz's policies were reversed. The US invested \$80 million of aid over three years which ensured the Armas administration would succeed and the country would remain dependent. Armas would go on to make communism illegal, return all of UFCO's land, and arrest and murder thousands of Guatemalans (LeFeber 125). After his assassination a few years later, the destabilized country was thrown into a nearly 40-year civil war, leaving hundreds of thousands dead, from which Guatemala has still not recovered.

In Árbenz's resignation speech, he laid bare the truth that Americans would have to wait decades to discover: that the ruling circles in the United States colluded with the United Fruit Company to fabricate a revolution using mercenaries. And, most importantly, that they "blamed their actions on the pretext of communism" (CIA #0000920952 1). Árbenz welcomed a broad coalition that included communists and refused to censor the press of Guatemala, moves that today are basic expectations of American freedom that should have been lauded. Instead, his defiant openness became an Achilles heel. The United States may have justified its actions through Cold War rhetoric, but the evidence shows that they used a shadow government to violently overthrow a democratically-elected leader in order to maintain American economic dominance over a sovereign nation. America depended on the subservience of Central America and could not abide a move toward independence. Throughout the CIA's records, agents warned that communism leads to dictatorships. Guatemala might say otherwise.



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Beta Equilibrium in Neutron Stars

By: Panqian Wang and Arturo Romero

ABSTRACT

A free neutron is an unstable particle with a mean lifetime of about 15 minutes, meaning that after this time it most likely will decay. Why do the neutrons not decay in a neutron star which is composed of neutrons? In this research we study the beta-equilibrium in neutron stars, which prevents the neutron from decaying and saves the star. The equilibrium is reached when the beta decay process (when a neutron decays into proton and an electron) is balanced out by the inverse beta decay (when a proton and an electron produce a neutron). To find the beta equilibrium, we treated a neutron star as a Fermi Gas of free neutrons, protons, and electrons at absolute zero temperature. We found that in order to be stable, a neutron star must have a certain amount of protons and electrons, where the ratio of the number of protons to the number of neutrons is 0.0012%.

1 INTRODUCTION

The neutron star(s) (NS) have been predicted and measured by many scientists since the mid-20th century. The understanding of the formation and properties of NS is very important for modern astronomy. In general, NS is calculated to have 1.4 - 3 solar mass with the radius of around 10 kilometers (Neutron star). Every NS consists of mostly neutrons and a small number of protons and electrons. It is an important fact that neutrons are not stable and decay in free space in about 15 minutes (Neutron). But why do we have stable neutrons inside a NS and inside its nuclei? The main goal of this research is to answer this question by analyzing the process of beta decay and its equilibrium inside NS.

Understanding the mechanism of beta decay inside NS is essential to grasp how NS operate in space. Beta decay is the process in which a neutron is converted into a proton and an electron (with neutrinos and energy which will be discussed later in discussion). Neutrons are not stable in free space and always have a tendency to decay into protons and electrons. They are stable in the nuclei of atoms because of the nuclear force. The nuclear force is exceedingly strong as compared to the electric and gravitational forces but

only exist in about 10^{-15} meter. NS have a density similar to the nuclei. This density is formed by the gravity force rather than the nuclear force. The beta decay stops and reaches the equilibrium when the energy of neutron is less than the energy of protons and electrons.

We use the ideal Fermi-gas model to discuss the energy of fermions. In the Fermi-gas model, every momentum phase can only be occupied by one identical fermion. In our case, electrons, protons and neutrons are different fermions and can exist in the same space. The beta decay still exists in the NS due to factors that affect the ideal case like temperature, but it is proved to reach an equilibrium theoretically when the energy of a protons and electrons get too high for neutrons to decay into.

2 THEORY

2.1 Fermi-Gas model, quantization, and phase space

In NS, we take neutrons as Fermi-gas model because neutrons are not reacting together. In Fermi-gas model, there exists a smallest momentum space for one particle to take up. In a 1-dimension (1-D) phase space, the minimum phase space of one particle is $2\pi\hbar$ based on the uncertainty principle. Every minimum phase space can only be occupied by one identical particle. Different particles are independent in phase space and they can occupy the same phase space at the same time.

Fermions always take up the lower energy space first and then move up (from yellow to red):

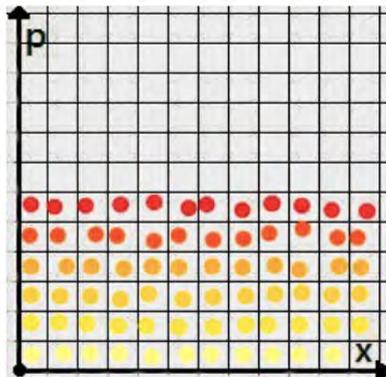


Figure 1

Figure 1: This graph shows a 2-dimension (2-D) space consists of x-axis and p-axis. $p = mv$ is the momentum of each particle, x is the size of the space. Each box is the minimum 1-D phase space ($2\pi\hbar$) that a fermion can take up. From yellow to red, the energy of the particles increases.

The number of particles N in 1-D phase space can be calculated with:

$$N = 2 \frac{p x}{(2\pi\hbar)}, \tag{1}$$

where $\hbar = 1.055 \times 10^{-34} \text{ Js}$ is the reduced Planck constant, and the coefficient 2 is due to the neutron spin 1/2.

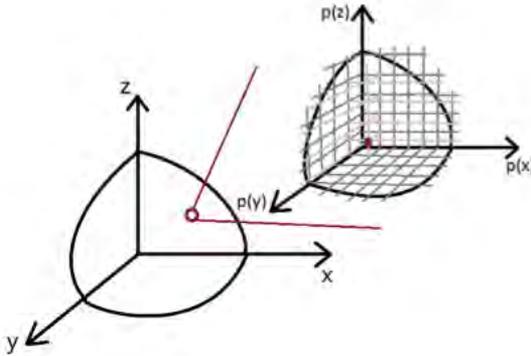


Figure 2

Figure 2: This graph shows a 6-dimension (6-D) space when 3-dimension (3-D) momentum space is composed with 3-D real space. Particles of different momentum can exist in the same point in 3-dimension space.

We take the 6-D space as 3 1-dimensional phase space with each phase space as a 2-D space as Figure 1. Take the space as a sphere, the total phase space (ps) in 3-dimension is:

$$V_{sphere} = \frac{4\pi}{3} R^3 \rightarrow V_{ps} = \frac{4\pi R_n^3}{3} \cdot \frac{4\pi p_{max}^3}{3}, \tag{2}$$

where R_n is the radius of NS.

The minimum 6-D space (V_{min}) can be treated as the multiplication of 3 1-D phase space which is a 2-D space with one p-axis and one x-axis:

$$V_{min} = (2\pi\hbar)^3 \tag{3}$$

where $2\pi\hbar$ the minimum space in 1-D phase space.

The number of particles N in 6-D space, or 3-D phase space can be calculated with:

$$N = \frac{2}{(2\pi\hbar)^3} \frac{4\pi R_n^3}{3} \cdot \frac{4\pi p_{max}^3}{3} \tag{4}$$

2.2 The energy balance and the equilibrium state

For the neutrons in the neutron star, we can introduce their maximum energy:

$$E_{max}(\text{neutron}) = \frac{p_{max}^2}{2m_n} \tag{5}$$

On the same state of momentum, the relation between p and the energy of particles will be:

$$\begin{aligned} p &= mv \\ E &= \frac{mv^2}{2} \end{aligned} \rightarrow E = \frac{pv}{2} = \frac{p^2}{2m} \tag{6}$$

$$\rightarrow E \propto p^2, E \propto 1/m.$$

To obey the Fermi-Dirac statistic, the momentum of identical particle will increase as the number of particles increase. If NS starts with only neutrons, the highest energy of neutrons will lead to the beta decay reaction because particles always prefer to stay in a lower energy state. When the high-energy neutrons become protons and electrons, they can occupy lower momentum space without breaking the the Fermi-Dirac statistic and reach a lower energy state.

m_e is much less than m_n and m_p , according to the equation (6), energy of electrons will rise much faster than neutron and proton when they all occupy the same phase space:

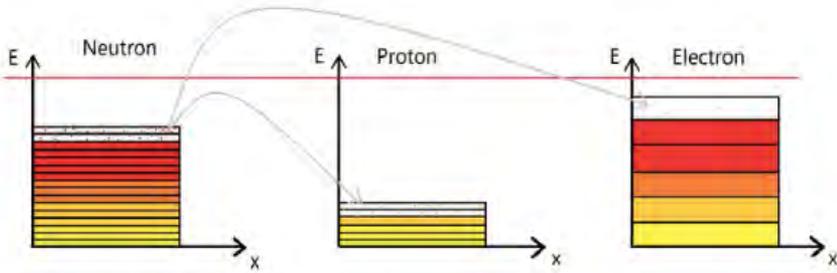


Figure 3

Figure 3: Fermi energy diagram for the neutrons (the left panel), the protons (the middle panel), and the electrons (the right panel). As the graph shows, the highest energy level for every type of Fermion is the surface energy (E_s). Inverse beta decay starts when the E_s of electrons and protons is higher than the E_s of neutrons, which is what the diagram shows.

Beta decay and inverse beta decay is balanced out when the E_s of electrons and protons is equal to the E_s of neutrons. Highest energy, E_s of the three particles are:

$$\begin{aligned}
 E_s(\text{neutron}) &= \frac{p_n^2}{2m_n}, \\
 E_s(\text{proton}) &= \frac{p_p^2}{2m_p}, \\
 E_s(\text{electron}) &= \frac{p_e^2}{2m_e}.
 \end{aligned} \tag{7}$$

Base on the law of conservation of energy, we reach equilibrium state when the $E_s(\text{neutron})$ is about equal to the sum of $E_s(\text{proton})$ and $E_s(\text{electron})$. The equilibrium state can be described with:

$$E_{max}(\text{neutron}) \leq E_{max}(\text{proton}) + E_{max}(\text{electron}). \tag{8}$$

And a ideal equilibrium state can be described with:

$$E_{max}(\text{neutron}) = E_{max}(\text{proton}) + E_{max}(\text{electron}). \tag{9}$$

2.3 Results

If the neutron star has only neutrons, the number of neutrons is

$$N = M_{NS}/M_n \quad (10)$$

According to equation (4), maximum momentum of neutrons is:

$$N = \frac{2}{(2\pi\hbar)^3} \cdot \frac{4\pi R^3}{3} \cdot \frac{4\pi p_{max}^3}{3} \rightarrow p_{max} = \sqrt[3]{\frac{9N(2\pi\hbar)^3}{16\pi^2 R^3}} = \sqrt[3]{\frac{9\pi N\hbar^3}{2R^3}}. \quad (11)$$

The ratio of mass of proton to the mass of electron is about 10^6 . According to equation (7), $E_s(\text{proton}) = 10^{-6} \cdot E_s(\text{electron})$. So the $E_s(\text{proton})$ is negligible.

And the equilibrium state is reached when $E_s(\text{neutron}) = E_s(\text{electron})$:

$$\left. \begin{aligned} E_s(\text{neutron}) &= \frac{p_n^2}{2m_n}, \\ E_s(\text{electron}) &= \frac{p_e^2}{2m_e} \\ E_s(\text{neutron}) &= E_s(\text{electron}). \end{aligned} \right\} \rightarrow \frac{p_{max}^2(\text{neutron})}{2m_n} = \frac{p_{max}^2(\text{electron})}{2m_e} \quad (12)$$

In the same NS, three different particles exist in the same space with the same radius $R = R_{NS}$. Based on the equation (11) and (12):

$$\left(\frac{9\pi N_n \hbar^3}{2R^3} \right)^{2/3} / 2m_n = \left(\frac{9\pi N_e \hbar^3}{2R^3} \right)^{2/3} / 2m_e, \quad (13)$$

where the N_n is the number of neutrons and N_e is the number of electrons, which is the same as N_p .

The ratio between the number of neutrons and the number of protons or electrons can be calculated with:

$$\frac{2m_n}{2m_e} = \frac{\left(\frac{9\pi N_n \hbar^3}{2R^3}\right)^{2/3}}{\left(\frac{9\pi N_e \hbar^3}{2R^3}\right)^{2/3}} \quad (14)$$

$$\rightarrow \frac{m_n}{m_e} = \left(\frac{N_n}{N_e}\right)^{2/3}$$

$$\rightarrow \frac{N_{electron}}{N_{neutron}} = \left(\frac{m_{electron}}{m_{neutron}}\right)^{3/2} \approx \left(\frac{1}{2000}\right)^{3/2} = 0.000011180334 \approx 0.000012$$

2.3 Discussion

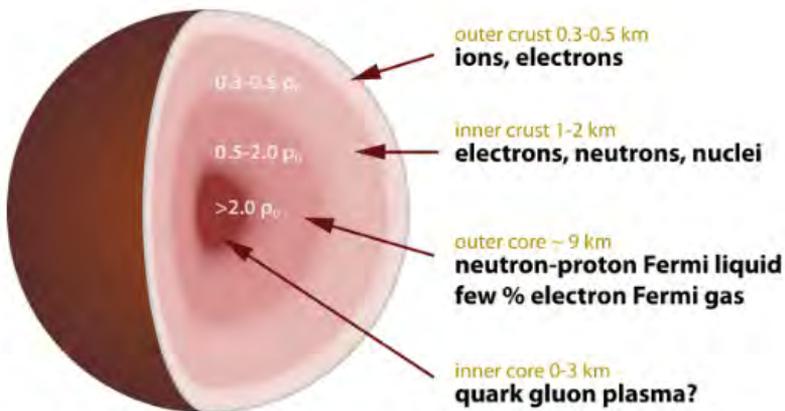


Figure 4: Interior of a neutron star [1].

1. The neutrino carries out the energy and the NS cool down due to neutrino. Would the energy neutrino bring away affect the equilibrium? The ratio of the energy that neutrinos take away to the whole energy of each neutron or proton is actually so small that it is negligible in each reaction. The NS cool down because there are billions of neutrinos flying away every second.

2. Why we can take NS as a fermi-gas model? NS is discovered to have four layers: inner core (0.3 km), outer core (about 9 km), inner crust (1.2 km) and outer crust (0.3-0.5 km). The inner core is too dense to describe (called the nuclear pasta). The outer core exists as liquid and fermi gas. We study the whole neutron star as fermi gas ignoring the crust and inner core since outer core takes up the biggest percentage of the NS.

Even though the ideal fermi-gas model should be at absolute 0 temperature and the NS is hot, the energy of particles is relatively high, so we can almost ignore the effect of temperature. When NS cooled down, the temperature of NS is about 10^6 kelvin. And the maximum energy of neutrons is about 0.1 GeV, which is 10^{12} K. Temperature of the NS may cause some fermions jumping from lower energy state to higher energy state and enable particles to continue the reaction after reaching the equilibrium.

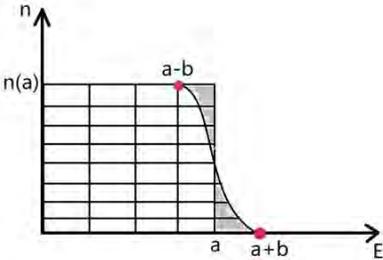


Figure 5

Figure 5: n is the number of neutrons in each energy state, and E is the energy state of neutrons. a is the highest energy that a neutron can have, which is 10^{12} K in this case, and b is the highest energy that the temperature of NS can provide, which is 10^6 K here.

4 Conclusion

Ignoring the minor effects in our discussion, beta equilibrium in NS of any size is reached when the ratio of neutrons to protons is approximately 250000 neutrons per 3 protons.

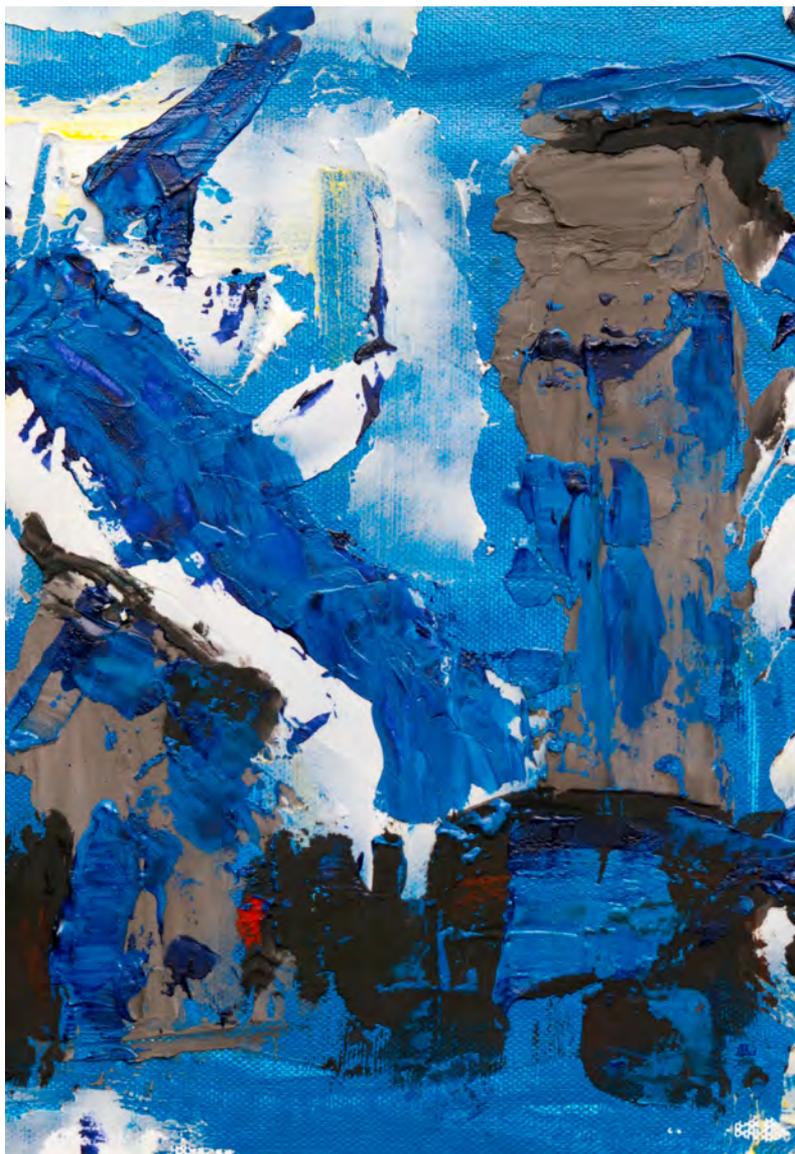
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Correction to the Earth's Orbit Due to the Sun-Earth-Moon Interaction

By: Shlok Suthar

ABSTRACT

In this article we studied the influence of the motion of the Moon on the Earth's orbit around the Sun. We started by considering the exact Newtonian gravitational interaction in the Sun-Earth-Moon system and, using the following mass hierarchy: $M_{\odot} \gg M_{Earth} \gg M_{Moon}$, derived the corresponding correction to the “naive” Earth-Sun potential energy. Without the obtained correction (and neglecting the other effects) the Earth's orbit is well known and corresponds to the Kepler's problem, with the obtained correction the Earth's orbit deviates from a perfect ellipse, for example, the Earth's perigee starts to shift by a small angle every year. In this study, this shift was calculated to be about 7.9 arcseconds per century and was compared to the other known effects, which lead to the Earth perigee precession. We also estimated similar interaction for Jupiter and its Galilean moons.

1 INTRODUCTION

The motions of bodies in our solar system are known to be caused by the gravitational interaction between the planet, planet's moons and the Sun, which gives us the shape of the planet's orbit. In this work, we focus on the shape of Earth's orbit which is said to be a perfect ellipse, if there is only gravitation interaction between the Earth and Sun. However, there are additional interactions such as the impact of other planets, which causes the orbit to deviate from an ellipse. In our case, when the Moon orbits around the Earth, it introduces an identical correction. Particularly, when it is closer to the Sun it has a stronger force on it and when it is farther from the Sun the force weakens. This outcome causes further precession of the Earth's orbit and this is what will be examined in this project. This study is significant because it can help us determine the path of Earth and whether it has any implication to our climate, in the future. Alternatively, calculating accurate data can benefit us when studying Earth-like planets in other systems and their motions around their parent star.

2 THEORY OUTLINES

If there is only Newtonian gravitational interaction between the Earth and the Sun, then it is known that the Earth's orbit is a perfect ellipse as seen in Fig. 1, the left panel. However, there are additional interactions which make the orbit deviate from an ellipse. For example, general relativity corrections, relativistic corrections, influence of other planets and so on. When the Moon orbits around the Earth it will introduce a similar correction as well: when it is closer to the Sun it has a stronger force on it and when it is farther from the Sun the force weakens. This effect causes an additional precession of the Earth's orbit, as shown in Fig. 1, the right panel, and this is what we will study in this research.

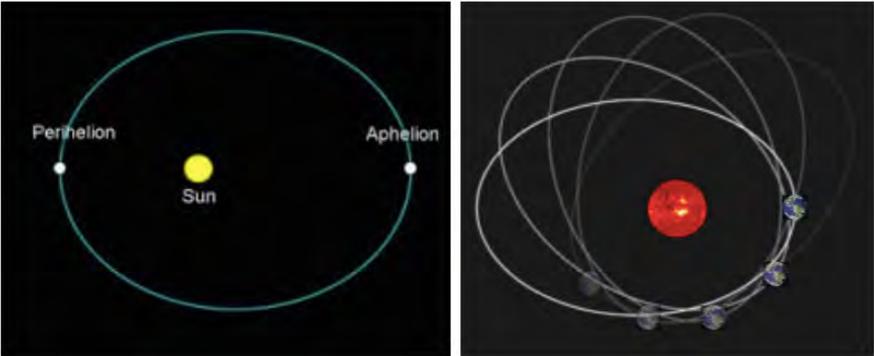


Figure 1: Earth's elliptical orbit (on the left), see Ref.[3] vs. the precession of the Earth's orbit due to Sun-Moon interaction (on the right), see Ref.[4]

2.1 THE INTERACTION OF THE SUN-EARTH-MOON SYSTEM

In order to calculate the deviation in the Earth's orbit from an ellipse, we write the exact potential energy of the interaction between the Sun, Moon and Earth

$$U = -G \frac{M_0 M_M}{r_1} - G \frac{M_0 M_E}{r_2} - G \frac{M_E M_M}{r}, \quad (1)$$

where U is the potential energy, $G = 6.67 \times 10^{-11} \text{ Nm}^2/\text{kg}^2$ is the fundamental gravitational constant, M_0 is the mass of the Sun, M_M is the mass of the Moon, M_E is the mass of Earth, r_1 is the distance between the Sun and Moon, r_2 is the distance between the Sun and Earth, and r is the distance between the Earth and Moon, as shown in Fig. 2.

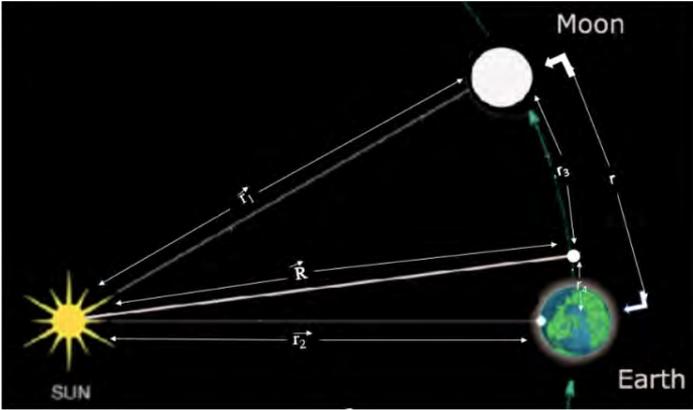


Figure 2: Sun-Earth-Moon System, see Ref.[5]

Let us introduce the position of the Earth-Moon center of mass calculated relative to the Sun and present the positions of the Moon and Earth as

$$\begin{cases} \vec{r}_1 = \vec{R} + \vec{r}_3 \\ \vec{r}_2 = \vec{R} + \vec{r}_4 \end{cases}, \quad (2)$$

here we introduced the relative positions of the Moon and Earth r_3, r_4 correspondingly, where R is the distance between the Sun and position of Earth-Moon center of mass. Due to the mass differences it is important to recognize the following hierarchy of distances and masses

$$\begin{aligned} M_M \ll M_E \ll M_\odot \\ r_4 \ll r_3 \ll r_2 \approx r_1 \approx R. \end{aligned} \quad (3)$$

We can simplify the exact potential energy (1) by using the differences in the distances Eq.(3), and for the Sun-Moon interaction we can write

$$U_{S-M} = -G \frac{M_{\odot} M_M}{r_1} = -G \frac{M_{\odot} M_M}{R} \frac{1}{\sqrt{1 + \frac{2(\vec{r}_3 \cdot \vec{R})}{R^2} + \frac{r_3^2}{R^2}}}, \quad (4)$$

where we used Eq.(2) for the Sun-Moon distance r_1 . It is important to note that the ratio $r_3/R \sim 10^{-3}$ is small and has a small effect on the Sun-Moon interaction, using Taylor series and keeping only the first two orders with respect to r_3/R , one can obtain

$$U_{S-M} \approx -G \frac{M_{\odot} M_M}{R} \left(1 - \frac{(\vec{R} \cdot \vec{r}_3)}{R^2} - \frac{r_3^2}{2R^2} + \frac{3(\vec{R} \cdot \vec{r}_3)^2}{2R^4} \right), \quad (5)$$

here we have three different terms: the monopole term, which corresponds to the pure Kepler's problem; the first order correction - the dipole term, which is proportional to r_3/R ; and the second order term - the quadrupole term, which is proportional to $(r_3/R)^2$. We will later see that the dipole terms cancel out and only the quadrupole terms survive. Similarly, the Sun-Earth interaction can be written as

$$U_{S-E} \approx -G \frac{M_{\odot} M_E}{R} \left(1 - \frac{(\vec{R} \cdot \vec{r}_4)}{R^2} - \frac{r_4^2}{2R^2} + \frac{3(\vec{R} \cdot \vec{r}_4)^2}{2R^4} \right) \quad (6)$$

Let us add the interactions (5) and (6) together and write the total interaction between the Sun and the Earth-Moon system as

$$U_{S-E} + U_{S-M} = -G \frac{M_{\odot}(M_E + M_M)}{R} + \delta U_1 + \delta U_2, \quad (7)$$

where δU_1 and δU_2 contain the first and second order corrections respectively. It can be shown that δU_1 cancels out:

$$\delta U_1 = \frac{GM_{\odot}}{R^3} [M_E(\vec{R} \cdot \vec{r}_4) + M_M(\vec{R} \cdot \vec{r}_3)] = 0, \quad (8)$$

The above cancellation happens since r_3 and r_4 are calculated relative to the Earth-Moon center of mass and

$$M_E \vec{r}_4 + M_M \vec{r}_3 = 0. \quad (9)$$

For the quadrupole term δU_2 , we can neglect the Earth contribution since $M_E r_4^2 \ll M_M r_3^2$ where the factors of substitution were used in deriving the equation such as $r_3 \approx r$ and $r_4 = r_3 \left(\frac{M_M}{M_E}\right)$, where the Moon to Earth masses ratio was calculated to be approximately 0.01. So we finally get

$$\delta U_2 = G \frac{M_\odot M_M}{2R^3} \left(r^2 - 3 \frac{(\vec{r} \cdot \vec{R})^2}{R^2} \right) \quad (10)$$

and our potential energy of interaction for Sun-Moon and Earth system (1), with the obtained correction is

$$U = -G \frac{M_\odot (M_E + M_M)}{R} + G \frac{M_\odot M_M}{2R^3} \left(r^2 - 3 \frac{(\vec{r} \cdot \vec{R})^2}{R^2} \right) \quad (11)$$

To simplify further, we average the quadrupole term (10) over the Moon's rotation period around the Earth

$$\left\langle r^2 - 3 \frac{(\vec{r} \cdot \vec{R})^2}{R^2} \right\rangle = \langle r^2 - 3r^2 \cos^2 \theta \rangle = -\frac{1}{2} r^2, \quad (12)$$

here θ is the angle between the position of the Earth-Moon center of mass and the Moon and we used

$$\langle \cos^2 \theta \rangle = \frac{1}{2\pi} \int_0^{2\pi} \cos^2 \theta \, d\theta = 1/2. \quad (13)$$

So our effective interaction becomes

$$U = -G \frac{M_\odot (M_M + M_E)}{R} - \frac{GM_\odot M_M r^2}{4R^3}, \quad (14)$$

where the first term is the well known Kepler problem with known solution and the second quadrupole term has the following form

$$\delta U = -\frac{\beta}{R^3}, \quad (15)$$

here $\beta = GM_{\odot}M_M r^2/4$. Equation (15) represents the correction to the pure Kepler problem potential and will result in the change of the Earth's orbit.

2.2 THE SHIFT OF THE EARTH'S PERIGEE

Now let us calculate the shift of Earth perigee due to the correction Eq. (15). The change in the orbital angle for one complete orbit is

$$\Delta\theta = \oint d\theta = 2 \int_{r_p}^{r_a} \frac{d\theta}{dr} dr, \quad (16)$$

where the integral is taken over one complete orbit, r_p is the distance to the perigee and r_a is the distance to the apogee of the Earth's orbit. The change of the angle over the change of the radius $d\theta/dr$ as a function of r can be presented as

$$\frac{d\theta}{dr} = \frac{(d\theta/dt)}{(dr/dt)} = \frac{\dot{\theta}}{\dot{r}} = \frac{|L|}{mr^2} \frac{1}{\sqrt{\frac{2}{m}(E - U_{eff}(r))}}, \quad (17)$$

here we expressed the angular velocity $\dot{\theta}$ through the orbital angular momentum L using

$$L = mvR = mr^2\dot{\theta}, \quad (18)$$

L is the angular momentum, $m = M_E + M_M$, and r is the distance between the Earth and Sun. For the radial velocity \dot{r} , we used the conservation of mechanical energy for radial motion, see Ref. [1],

$$E = \frac{m\dot{r}^2}{2} + U_{eff}(r), \quad (19)$$

where the effective potential

$$U_{eff}(r) = \frac{L^2}{2mr^2} - \frac{\alpha}{r}, \quad (20)$$

where $\alpha = GM_{\odot}m$. Finally, the integral (16) changes to

$$\Delta\theta = 2 \int_{r_1}^{r_2} \frac{L}{mr^2} \frac{dr}{\sqrt{\frac{2}{m}(E - U_{eff}(r))}}. \quad (21)$$

This integral was calculated after multiple substitutions with lengthy and sophisticated computations with the result being

$$\Delta\theta = 2\pi + \left(\frac{6\pi m^2 GM_{\odot} M_M r^2 \alpha}{L^4} \right), \quad (22)$$

where 2 corresponds to perfect ellipse of the Earth orbit around the Sun.

3 RESULT

Now let us simplify Eq(20) by substituting $m = M_E$, $\alpha = GM_{\odot}M_E$ and $L^4 = M_E^4 GM_{\odot}^2 R^2$, since $L = mr^2\omega$ and $\omega = \sqrt{GM_{\odot}/r^3}$. All these substitutions give us an elegant and simple shift for the Earth' perigee

$$\Delta\theta = 2\pi + \frac{3\pi}{2} \left(\frac{r}{R} \right)^2 \left(\frac{M_M}{M_E} \right), \quad (23)$$

where r is the orbital radius of the Moon and R is the distance of Earth from the Sun. After substituting M_M , M_E , r , R with their actual numbers and calculating the angle, the result is

$$\delta\theta = \Delta\theta - 2\pi = 3.83 \cdot 10^{-7} \text{rads} = 2.2 \cdot 10^{-5} \text{degs} = 7.9 \cdot 10^{-2} \text{arcseconds}. \quad (24)$$

So in one year the Earth's orbit would shift by

$$\delta\theta = 7.9 \cdot 10^{-2} \text{arcseconds} \quad (25)$$

and by 7.9 arc-seconds per century. Comparing this precession to the precession due to Jupiter and Venus we get 1158 arc-seconds per century. Additionally, calculation according to general relativity gives us 3.8 arc-seconds per century, see Ref.[2] and if done relativistically the correction is one arc-second per century. Using Eq(23), the precession of Jupiter caused by its four Galilean moon's was also calculated and it is estimated to be $4.9 \cdot 10^{-4}$ arcseconds every 12 Earth years or 1 year of Jupiter.

4 CONCLUSION

In this project, the motion of Earth's orbit around the Sun was studied, and described to be a perfect ellipse, if there was only Earth and Sun gravitation interaction, also known as the Kepler problem. However, the Moon has additional interaction with the Earth-Sun system, which introduces correction to the elliptical orbit of Earth. This correction was calculated by introducing exact gravitational interaction in the Sun-Earth-Moon system and, using the following mass hierarchy: $M_{\odot} \gg M_{Earth} \gg M_{Moon}$, the correction to the "simple" Earth-Sun potential energy was derived. Later, this derived correction was used to calculate the precession of Earth perigee, which is calculated to be 7.9 arc-seconds per century. Although, the shift is not large it is comparable to the precession due to general relativity, relativistic correction and to Jupiter and Venus. Similarly, the precession of Jupiter due to its four Galilean moons was estimated as well, with its shift being $4.9 \cdot 10^{-4}$ arcseconds every 12 Earth years. Further research can include in calculating the precession of Moon's orbit due to Earth-Moon interaction with the Sun.

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Avalanche Model

By: Christine Silva and Ekaterina Arslanbaeva

ABSTRACT

In this project we developed and completely solved a simple mathematical model that describes the motion of an avalanche in n dimensions. First, we considered a discrete 1-D model in which the mass of moving snow is presented in a form of “snow blocks” lined up on an inclined plane separated by a certain distance. We solved this 1-D model exactly by applying 1-D kinematic equations and using the conservation of linear momentum. With the information and data gathered from the solution of this model, we could formulate and solve a most general n -dimensional avalanche model, which is mostly applied to the realistic case of $n = 2$. As the result, we derived that the avalanche slides down with a constant acceleration $a = g \sin \theta / (1 + 2n)$, the size of the avalanche $x \sim at^2$, and the mass of the avalanche $m \sim x^n \sim t^{2n}$.

1 INTRODUCTION

An avalanche occurs when a dense layer of accumulated snow is triggered by a (natural or artificial) force or energy causing it to flow down rapidly on an inclined surface (Avalanche). There are several factors that can contribute to the probability of an avalanche. According to the National Snow and Ice Data Center, wind speed and direction, steepness of slope, vegetation, terrain, the weather and temperature can increase the likelihood of such an incident (All about snow). Although big avalanches mostly occur during and after huge snowstorms in the mountain areas, it is still considered to be one of the most dangerous catastrophes people might encounter in life, especially for mountain skiers and for people living on mountain sides (Avalanches). Based on Colorado Avalanche Information Center’s statistical report, from 1993 to

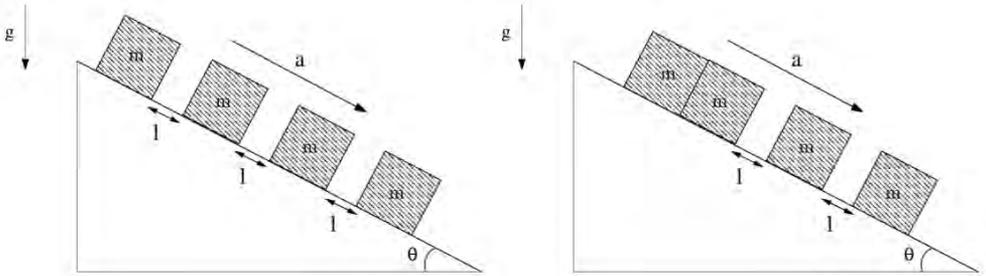


Figure 1: Motion of avalanche in 1-D model

2016, an average of 27 fatalities in the U.S. due to an avalanche has been reported (Avalanche accident statistics). In this paper, the propagation of an avalanche from the starting zone to the runout zone in 1-D, 2-D and n-D model of an inclined plane will be investigated. At the same time, this will give people a deeper understanding of how avalanches work, and also provide a model that can contribute to their safety.

In 1-D, the avalanche model is represented as a set of blocks on an inclined plane. Each block has the same mass and distance between them. When the topmost block begins to move, it overcomes the distance to the second block; due to inelastic collision the two blocks will move as one unit of mass sliding down to the following Nth block, repeating the same situation making the mass increase as more blocks merge. The action of the model ends when all the blocks are one and have finished their movement with a complete stop. In the 1-D model, kinematics for constant acceleration, conservation of linear momentum, and summation was used to derive the general form of equation for initial velocity and velocity before a block hits the next block, of masses represented by N -blocks sliding down a frictionless slope. In 2-D model the avalanche model can be represented as a set of blocks on an inclined surface. The blocks are arranged in the form of a triangle. The topmost block is the angle of the triangle. The bottom of the surface is the base of the triangle. Starting from the first block, each subsequent line increases in geometrical progression. The distance between the lines of the blocks is the same. The action of the model ends when all the blocks are one and have finished their movement with a complete stop. Using the information we acquired from the first model, we introduced three postulates to solve an n-dimensional model describing the motion of an avalanche.

2 THEORY OUTLINES

We start with a 1-D discrete model by finding the velocity of the avalanche as a function of the number of “snow blocks” that are involved into the motion. To do so, two different velocities will be introduced: V_N and U_N . V_N is the velocity of N blocks just right before they hit the next $(N + 1)$ block; U_N is the initial velocity of N blocks which they acquired after $(N - 1)$ blocks hit the N^{th} block, see Figure 1. During the time while N blocks accelerates down and travel the distance l they will increase their velocity according to the standard constant acceleration motion equation

$$V_N^2 = U_N^2 + 2al, \quad (1)$$

where l is the distance between the blocks and a is the acceleration in the system, for a frictionless motion $a = g \sin \theta$, where θ is the inclination angle.

The snow blocks have a linear momentum as they accelerate down the plane towards the following block. During the collision, the total linear momentum of the system is conserved. So we can write:

$$m_{N+1}U_{N+1} = m_N V_N, \quad (2)$$

where m_{N+1} is the mass of the $(N + 1)$ blocks, and U_{N+1} is its initial velocity; similarly, m_N is the mass of the first N blocks and V_N is its velocity just before it hits the next $(N + 1)^{th}$ block. From the Eq. (2) for a 1-D model: $m_N = m_0 N$, the initial velocity of $(N + 1)$ blocks before the collision can be written as

$$U_{N+1}^2 = \frac{N^2}{(N + 1)^2} V_N^2. \quad (3)$$

To find U_N and V_N as a function of N , a certain pattern can be determined. We solve Eqs.(1) and (3) as a system of two recursive equations with the $U_1 = 0$ initial condition. The solution can be sketched as follows (for the first four blocks):

$$\begin{aligned}
U_1^2 &= 0, \\
V_1^2 &= 2al, \\
U_2^2 &= \frac{1^2}{2^2}V_1^2 = \frac{1}{2^2}2al, \\
V_2^2 &= \frac{1}{2^2}2al + 2al = 2al \left(\frac{1}{2^2} + 1 \right), \\
U_3^2 &= \frac{2^2}{3^2}V_2^2 = \frac{2^2}{3^2} \left(\frac{1^2}{2^2}2al + 2al \right) = 2al \left(\frac{1^2}{3^2} + \frac{2^2}{3^2} \right), \\
V_3^2 &= 2al \left(\frac{1^2}{3^2} + \frac{2^2}{3^2} + \frac{3^2}{3^2} \right), \\
U_4^2 &= 2al \left(\frac{1^2}{4^2} + \frac{2^2}{4^2} + \frac{3^2}{4^2} \right), \\
V_4^2 &= 2al \left(\frac{1^2}{4^2} + \frac{2^2}{4^2} + \frac{3^2}{4^2} + \frac{4^2}{4^2} \right),
\end{aligned} \tag{4}$$

The pattern can be easily recognized, so for V_N we can conclude:

$$V_N^2 = 2al \left(\frac{1^2}{N^2} + \frac{2^2}{N^2} + \frac{3^2}{N^2} + \dots + \frac{N^2}{N^2} \right), \tag{5}$$

or

$$V_N = \sqrt{\frac{2al}{N^2} (1^2 + 2^2 + 3^2 + \dots + N^2)} = \sqrt{\frac{2al}{N^2} \cdot \frac{N(N+1)(2N+1)}{6}}, \tag{6}$$

where we used the well-known formula for the sum of the squares of the first N natural numbers, finally we got

$$V_N = V_1 \sqrt{\frac{(N+1)(2N+1)}{6N}}, \tag{7}$$

$$U_N = V_1 \sqrt{\frac{(N-1)(2N-1)}{6N}}, \tag{8}$$

where $V_1 = \sqrt{2al}$. One of the conclusions we can derive from the Eqs. (7) and (8) is the correlation between the avalanche's velocity and it's mass, at large N :

$$V^2 \propto N \propto m, \quad (9)$$

where m is a mass of the avalanche. In 1-D model the mass the avalanche is proportional to the length of the avalanche $m \sim x$, so we can conclude

$$V^2 \propto x, \quad (10)$$

which corresponds to a constant acceleration motion.

Using the information gathered above, we can formulate three postulates that will help us to describe the motion of an avalanche in n dimensions:

(1) The proportionality of mass to its length give us a *constant*; thus, we can write the equation:

$$m = \text{constant} \cdot x^n = c \cdot x^n, \quad (11)$$

where n is the dimension of the model. For example, in two dimensions $m \sim x^2$.

(2) The velocity of the avalanche model can be written as the rate of change of the position with respect to time:

$$V = \frac{dx}{dt}. \quad (12)$$

(3) The avalanche can be described using the second Newton's law as

$$\frac{dp}{dt} = mg \sin \theta, \quad (13)$$

where dp/dt is the rate at which the momentum of the avalanche changes, $mg \sin \theta$ is net force acting on the avalanche, θ is the inclination angle, and g is the free fall gravity acceleration.

Now let us solve the model we formulated above. The momentum of the avalanche p is

$$p = mV = \text{constant} \cdot x^n V. \quad (14)$$

We can rewrite the second Newton's law (13) as

$$\frac{dp}{dt} = \frac{d(mV)}{dt} = mg \sin \theta \quad (15)$$

If we substitute the mass of the avalanche as cx^n and cancel the constant c we will get

$$\frac{d(x^n V)}{dt} = x^n g \sin \theta. \quad (16)$$

This is a differential equation which can be solved by multiply the both sides of the equation by $x^n V$:

$$(x^n V) \frac{d(x^n V)}{dt} = g \sin \theta (x^{2n} V). \quad (17)$$

The left and right sides of this equation can be integrated as

$$(x^n V) \frac{d(x^n V)}{dt} = \frac{\frac{d}{dt}(x^n V)^2}{2} \quad (18)$$

and

$$(x^{2n}) \frac{dx}{dt} = \frac{1}{2n+1} \frac{d}{dt} (x^{2n+1}). \quad (19)$$

Finally after integration we get

$$\frac{(x^n V)^2}{2} = \frac{g \sin \theta}{1+2n} x^{2n+1} + \text{constant}, \quad (20)$$

where *constant* is the constant of integration. At the very begin of the avalanche motion the avalanche's velocity should be zero, the same as the avalanche length, therefore we conclude that *constant* = 0.

After we cancel x^{2n} on the both sides of equation (20) we get

$$\frac{V^2}{2} = \frac{g \sin \theta}{1 + 2n} x. \quad (21)$$

To find the acceleration of the avalanche we can take the time derivative from the both sides of equation (21):

$$V \cdot \frac{dV}{dt} = \frac{g \sin \theta}{1 + 2n} \cdot \frac{dx}{dt}. \quad (22)$$

As the result we got the avalanche slides down with a constant acceleration rate $a = dV/dt$

$$a = \frac{g \sin \theta}{1 + 2n}. \quad (23)$$

It is interesting to note that the acceleration we got is lower than the naive $g \sin \theta$ by a factor of $(2n + 1)$, this is due to the fact that while avalanche slides down its mass increases.

Finally the time dependence of the velocity, length, and mass of the avalanche is:

$$v = a \cdot t \sim t, \quad (24)$$

where velocity increases linearly with time t ;

$$x = \frac{a \cdot t^2}{2} \sim t^2, \quad (25)$$

where the size of the avalanche increases as t^2 ; and

$$m = c \cdot \left(\frac{at^2}{2} \right)^n \sim t^{2n}, \quad (26)$$

where the mass increases as t^{2n} .

3 RESULTS

During the process of deriving the general equation for 1-D avalanche model, it was found that there is a dependence between an avalanche's velocity and its mass. In other words, the mass increases as V^2 follows from Eq. (9). Furthermore, we proved that the mass of an avalanche is proportional to the size of the avalanche. As the blocks descend down the plane due to gravity, it will gain momentum and will accumulate mass as it merges with the blocks along its path. This accumulation of mass will increase the size of the avalanche. We use this idea to formulate and solve a n -dimensional avalanche model, where mass increases as the avalanche size in power n , where n is the dimension of the model. By applying this idea, along with velocity as a rate of change in position over time, and the impulse-momentum theorem, acceleration of the avalanche was found. As the result, we derived that the avalanche slides down with a constant acceleration $a = g \sin \theta / (1 + 2n)$, the size of the avalanche $x \sim at^2$, and the mass of the avalanche $m \sim x^n \sim t^{2n}$.

What is the dimension of a realistic avalanche? At first glance, any avalanche should be considered as a two dimensional ($n = 2$) system, in this case its acceleration will be

$$a = \frac{1}{5} g \sin \theta \quad (27)$$

However, it is possible to introduce a fractional dimension of the avalanche. For example, the effect of compressibility of snow may change the effective dimension of the avalanche as

$$m \sim \rho(x)x^{2n}, \quad (28)$$

where $\rho(x)$ is the density of the snow in the avalanche, which may depend on the avalanche size x . From the most general point of view, the snow in the avalanche can be compressed as the avalanche moves down and increases in size as

$$\rho(x) \sim x^\epsilon, \tag{29}$$

where ϵ is a positive constant defining the compressibility of the snow. If this is the case, the avalanche acceleration will be

$$a = \frac{1}{5 + \epsilon} g \sin \theta. \tag{30}$$

Another opportunity is to introduce an actual fractional dimension of the avalanche and try to describe the avalanche as a fractal. Both of these opportunities are subjects for the future studies.

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