I get along well with my roommate, but one of his habits I find inexcusable: he refuses to drink from the tap. Instead, he buys 24-packs of water bottles weekly, and as a result litters our room with them. Despite my protest, he insists that bottled water is cleaner and healthier than the tap, and thereby justifies his purchases. Certainly, my roommate is not alone in this mode of thinking. Grocery stores, mass merchandisers, convenience stores and vending machines across America sell bottled water, and in doing so participate in one of the largest parts of the nation’s beverage market. The misconception that bottled water is healthier than tap water permeates throughout the United States, but the data shows that tap water is as healthy or healthier than its opponent, and that the popularity of bottled water is a significant economic disadvantage and environmental threat.

The notion that bottled water is a safer alternative to tap water can be traced to both the historical origins of bottled water. The first commercial bottling of water started in Europe in the late nineteenth century, preserving natural mineral waters. At the time, the expensive bottled water was a privilege of the bourgeoisie classes, as the poor relied on neighborhood wells. In the beginning, such bottled water was actually much healthier than municipal systems. London was ridden with frequent waterborne disease outbreaks such as cholera. Thus, we can see where the misconceived healthiness may have originated. Bottled natural mineral water was truly natural, and actually did have minerals, and was therefore healthier. It also served as a symbol of upper-class status. Municipal water systems have come a long way with technological development in purification and distribution methods; now there are strict guidelines that ensure the safety of tap water for human consumption. Today, water bottle companies and the International Bottled Water Association (IBWA) propagate the misconceived superiority of bottled water in promotion of their product.

Water bottle companies and the IBWA highlight the “purity” of bottled water in a variety of ways, some being very subtle. Every water bottle label seems to give the same message with images and words of glaciers, springs, or other “naturally pure” concepts. Just the
titles of water bottle brands serve this purpose: “Ice Mountain,” “Pure Life” and “Poland Spring” are just a few examples. These advertising strategies suggest that the water within the bottle has something to do with the images of purity on the label. Such a suggestion is in fact misleading. In an interview with NPR, Peter Gleick, a member of the National Academy of Sciences and the International Water Academy, points out that about 40% of bottled water is actually reprocessed municipal water. However, there is “no requirement at the federal level that water bottlers put the source of the water on their bottle” and we are mislead to believe that the water in our bottles come from arctic glaciers, when they come from the same source as what comes out of the faucet.

This fact is instead ignored, and companies promote the purity and sanitation of bottled water; in doing so, they imply that tap water is the opposite. On their website, the IBWA uses specific terms and phrases to suggest the purity and superiority of bottled water. For example, on their “Bottled Water vs. Tap Water” page, they promote how bottled water is “intended solely for human consumption” while tap water is for “human consumption and other uses (e.g. washing clothes, bathing and other industrial uses).” Although this isn’t untrue, the IBWA qualifies tap water by reminding the reader that it is used for unsanitary purposes as well. All over the website, the IBWA incessantly promotes the superiority of bottled water: “When it comes to quenching your thirst, nothing does it better than convenient, healthy, safe, zero calorie bottled water. It’s the smart beverage choice.” Again, they don’t explicitly attack tap water. Nevertheless, when the IBWA glorifies one product, and says nothing about the other, it implies that the same glorification doesn’t apply. Such one-sided promotion is not surprising (advertising is a normal business strategy), but it has harmful side effects: propagating the misconception of superiority of bottled water.

It is important to remember that this misconception is not entirely unfounded. Indeed, community water systems are not perfect. Waterborne diseases still exist. In 1993, an outbreak of cryptosporidiosis in Wisconsin infected 400,000 people and caused 50 deaths in the largest outbreak of waterborne disease in recent history. Whenever outbreaks occur, the Environmental Protection Agency (EPA) notifies the affected area, with specific directions on managing strategies, such as boiling (Water On Tap). Also, people are concerned about metals,
such as copper or lead, in their water from the pipes through which tap water travels. The EPA has specified maximum lead and copper amounts in the Lead and Copper Rule, and makes such information available to the public (epa.gov). Cities could always make technological improvements to its municipal water systems. Despite its imperfections, the EPA succeeds in ensuring safe drinking water. A different set of standards regulates the safety of bottled water.

The difference between bottled water and tap water quality comes from a difference in agencies tasked with regulating the safety standards of each. Whereas the EPA regulates tap water, bottled water is categorized as food, and therefore the Food and Drug Administration (FDA) is responsible for regulating it. The Safe Drinking Water Act is the law that covers all aspects of drinking water regulations from the EPA. It sets the enforceable health standards of contaminants, requires public notification of systems violations, allows for provisions to protect water sources, and mandates assessment of vulnerability to contamination in systems (Water On Tap). One important factor when assessing the regulation of bottled water to remember is that the FDA is only responsible for interstate commerce. Therefore, companies that produce and sell their bottled water within state lines are not subject to the same standards as larger, interstate corporations. In fact, “60 to 70 percent of our bottled water actually isn't regulated by the federal government because it doesn't enter interstate commerce” (Gleick). In contrast, the same federal laws and regulations cover all municipal water sources. There is variation between cities, as each city is responsible for meeting the requirements set by the EPA, and each municipal water system conducts its own testing. Infamously, the tap water in Los Angeles is supposedly much dirtier than that of New York. However, this is much more safe, in terms of meeting regulations, than the large number of federally unregulated bottled water producers. Gleick illustrates the risk of these producers in an experience he heard of which stated that, after months in circulation, a batch of bottles were recalled due to contamination with cricket “parts,” in the 1990s. Largely, however, consumers buy from producers that meet FDA regulations, as most of the water bottle market comes from the big beverage companies of Nestle, Coca-Cola, and PepsiCo. These distributors adhere to the FDA requirements. While these requirements are effective, they are certainly not perfect, nor superior to those of the EPA.
For example, consider antimicrobial protection. The FDA has no antimicrobial recommendations for after opening, as bottled water is purified and then sealed, according to Sean Raj for the *Water Environment Research* journal. Understandably, water bottle companies only need to get the water to the consumer, and what happens after that – storage, keeping the water clean – is not an issue. Raj’s study examines bacteria growth in tap and bottled water after someone takes a sip. Raj’s results show that, in a number of hours after first opened and tasted, bottled water far exceeds what could be considered “healthy.” The average number of bacterial colonies in one bottled water group increased from 0.8 col/mL (colonies per milliliter) to 6,833 col/mL in 48 hours, far exceeding the National Resource Defense Council’s suggested limit of 500 col/mL. The tap water, in comparison, grew from 0 col/mL to 41.1 col/mL. Raj admits that the bacteria colonies were “normal,” but still potentially pathogenic, especially when considering cross-contamination from sharing bottles. It is natural that consumers won’t finish a bottle of water immediately after opening it; therefore this study’s findings are significant. Once opened, bottled water has the potential to harbor much more bacteria, and it grows much more contaminated by the hour. The tap water, on the other hand, had far less bacterial growth in the same conditions. Evidently, certain antimicrobial agents were present in the tap water, and absent from the bottled water.

Another important difference between FDA and EPA regulation is the mineral levels of calcium and magnesium, two important minerals that we need to have in our diets. These differences are identified and analyzed by a study in the *Journal of General Internal Medicine*, conducted by Azoulay, Garzon and Eisenberg. The study found that in many major North American cities, there were sufficient levels of calcium and magnesium in tap water. In fact, an adult could fulfill their daily dietary requirements of the minerals just by drinking two liters of tap water. On the other hand, North American bottled water sources had an insufficient mineral profile. Ironically, even bottles labeled as “mineral water,” such as Perrier, contained low mineralization (Azoulay). In this case, tap water wasn’t just healthy; it was healthier than bottled water. Gleick also speaks on the topic. He describes how, during the purification process, companies strip bottled water of its naturally occurring minerals and then puts a
standardized level of minerals in, so that their water tastes the same all over the country. Obviously, something is lost during that process, which makes the tap water healthier.

These studies do not act as concrete evidence that bottled water is poison and tap water is perfect; they simply refute the misconception that bottled water is superior. In fact, bottled water companies and municipal water systems meet their similar safety standards very effectively, and the departments set the same regulatory levels for 80% of contaminants (DWRF). Although they both serve as similarly healthy drinking water, this misconception fuels the massive and rapidly expanding water bottle industry. Since the Beverage Marketing Corporation started tracking in 1991, consumption has increased 300%, making America the leader in bottled water consumption, according to Business Insider (Boesler). In 2011, consumers bought 9.1 billion gallons, which brought in more than $11 billion in producer revenues. Bottled water came out to about $1.21 per gallon that year (Rodwan). In comparison, tap water is about more than 500 times cheaper, coming out to $2 per 1,000 gallons, or less than a cent per gallon (Drinking Water Costs). Individual water bottles may seem inexpensive, but on a large scale, buying bottled water is a tremendously inefficient economic strategy for consumers. Furthermore, reusing a water bottle isn’t just an economically sound strategy; it’s also environmentally sustainable.

This massive plastic consumption would not be such a problem were it not for the devastating environmental impact of water bottle waste. Most water bottles are made from PET plastic, due to its flexible, durable characteristics. However, this type of plastic is relatively indestructible when it comes to degradability. Even though PET plastic is recyclable, the US populace does a poor job of it. In 2010, the recycling rate for PET bottles was 29%, compared to its peak in 1995 at 37%. The rest of the 1.5 million tons we wasted, and, by not recycling, we wasted enough energy in producing new PET bottles to power 500,000 American homes for a year, not to mention the 17 million tons of greenhouse gas emissions, which we could have saved. Used water bottles are going to landfills, or are being littered into oceans and other habitats, and we are wasting tremendous resources making new ones.

Destroying bottled water isn’t the sole solution, and the Safe Drinking Water Act could certainly use revision, especially considering our development in purifying and monitoring
technology. However, we can support and expand the availability and quality of tap water only if we are able to recognize that the purity and superiority of bottled water is a misconception. The EPA and FDA both set similarly strict guidelines for drinking water, and thus, the quality of bottled water is not necessarily better than that of tap water. In fact, it is likely that many bottled water products are less regulated or less healthy than tap water. Through this refutation, I can at least convince my roommate to start drinking the tap and contribute to a more environmentally sustainable dorm room. My roommate isn’t the end of the story, however. By refuting the widespread misconception that bottled water is healthier than tap water, we can avoid the unnecessary expense and waste of bottled water, and contribute to a more environmentally sustainable society.
Works Cited


