Every day I drive to school I feel so blessed to be able to drive through the ever changing foothills of California. I see many things like magpies and turkeys doing their funny dances on the sides of the roads. I see people fishing on the shores of the reservoirs as the ducks gingerly swim past them. My favorite is to see all the many pockets of cows (and the occasional horse) indulging themselves in the blankets of grasses that cover the hills that seem to rest peacefully under their passing hoof beats. This is a stark contrast to the unpleasantness that one encounters as they drive down interstate 5. I used to visit my mother in New Mexico and always had to take this route past the Harris Ranch Feedlot. The 800 acre Feedlot houses up to one hundred thousand head of cattle at once and has the ability to process (slaughter) upwards of two hundred thousand a year (Igler). I'm still not sure what is worse: all those cows smashed together living and eating their own poop during the last few months of their lives, or simply the smell. You just can't get away from it. As a child I could not see myself eating animals because I loved them so much. I said this every night as I shoveled the chicken or beef into my mouth. Today, I eat meat out of necessity, but cannot do so without the thought of Harris Ranch and others like it turning my taste buds into sandpaper.

As humans, we have evolved over the centuries with so much force that we have directly influenced the evolution of many other species. One such species is that of the modern day cow. Humans have cultivated and grown the species so that it caters precisely to our needs. We use almost every aspect of this animal in some way or another. We eat its beef, drink its milk, wear (or sit on) its leather, and some cultures still use it today for draft work. This animal has both nourished us immeasurably over time, but also been the source of widespread epidemics that caused hundreds of thousands of human deaths. The modern day cow may have its origins somewhere in or around ancient Mesopotamia (PBS) but that is still up for debate. Some places still revere it as sacred, but the sad truth is that most current countries have grown to economically depend so heavily on this animal that we have almost completely debased it and lost any appreciation for the fact that it is just as alive as we are. The cow is and continues to be one of humanities largest science experiments with its benefits, ethical dilemmas, controversies, and environmental side effects.

According to M. R. Montgomery, there was no such thing as a cow until about ten thousand years ago (7). He also goes on to say that "It is an amazing story, but it is not an evolutionary event in the ordinary sense of that word, for mankind actually invented the cow anew (7). Montgomery states that "evolutionary biologists agree that all domestic cattle are descended from a common ancestor" a "primordial ox" called an auroch which is long since extinct (7). "The wild auroch was from the early Neolithic [and] was found in most of Europe, North Africa, and South West Asia" (Grigg 40).
Montgomery ascertains that "there is no record, no physical evidence, of how and precisely when and where stone-age humans tamed and bred the aurochs. What is certain is that they did it very carefully because the aurochs were an animal nearly twice the size and many times the weight of the hugest modern cow. Worse, from Neolithic man's point of view, the aurochs had a reputation for fierceness equal to that of bears and lions"(10).

Ancestors of modern humans evolved from Apes around seven million years ago and at that time all humans found their meat protein nutritional requirements through the hunting of wild animals (Diamond 86). "It was only within the last 11,000 years that some peoples turned to what is termed food production: that is, domesticating wild animals and plants and eating the resulting livestock and crops"(Diamond 86). Griggs claims that the first archaeological evidence of domesticated cattle is dated between 8,500 and 6,500 BCE and comes from Greece (40). He goes on to say that "by the fifth and fourth millennia BC[E] most of the excavated sites in the East Mediterranean and South West Asia had evidence of cattle, and cattle had diffused, or been domesticated independently, in North africa and Europe"(40). According to David Malakoff in his documentary "Holy Cow", the cow domesticated separately in Mesopotamia, the Indus River Valley, and North Africa as the evolutionary path of human kind gradually turned from the hunter gatherer lifestyle into that of agriculture. From everything that I have read, cows have been an integral part of our lives from almost the beginning of time.

It is not just in Western Societies that cows mattered. The very earliest pictographs from China and Egypt include ones for cows and calves or bulls. There are paintings of milk cows on Egyptian tomb walls and bas-reliefs of bulls on the arches of Babylon. All of these places and more had cows before written language, before cities, before the wealth to become conquerors. The first rudimentary symbolic or pictorial written languages had an image that stood for cattle. The man on horseback might be the warrior, but the capital to own a horse and equip an army depended on the cows at home (Montgomery 28-9).

It had to have been impossible for the Paleolithic and Mesolithic humans to know the dramatic effect their domesticating of these animals would have on the rest of humanity, and there are many arguments and view points as to exactly when, why, and how this actually occurred. Archaeologists "argue about whether, in the earlier periods" these "human hunters followed their prey in a catch-as-catch-can manner as do other carnivores such as the lion or the wolf, or whether wild ungulates were herded, tamed, followed, or in any other way consciously managed"(Clutton-Brock 10). However they were tamed, the throughout history the bull has served as a symbol of power and strength. According to Rimas and Fraser "our early ancestors laid the psychological foundations to the tame the world. Taming the bull, as we have seen, was more of a matter of will than muscle... No hunter would have approached the prospect of a bull hunt without feeling some sense of gravity. Fear had to weigh in the balance with a hunger for meat and for social esteem"(52).

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Jarrod Diamond is very thorough in his theory as to why the domestication of this animal was so beneficial to the early human civilizations. He claims that it "fed more people in four distinct ways: by
furnishing meat, milk, and fertilizer and by pulling plows. First and most directly, domestic animals became the societies' major source of animal protein, replacing wild game"(88). He adds that "All those are direct ways in which plant and animal domestication led to denser human populations by yielding more food than did the hunter-gatherer lifestyle"(89). Another factor for the rise in the domestication of cows may be the decline in the wild species that were traditionally hunted. "The lifestyle of hunter-gatherers has become increasingly less rewarding over the past 13,000 years, as resources on which they depended (especially animal resources) have become less abundant or even disappeared" (Diamond 110). Diamond suggests that the contributing factors are both climate change and the "rise in skill and numbers of human hunters" (110).

From what has been accounted thus far, it seems as though humans have found the perfect food source. Not only is it easy to care for, docile, profitable, breeds easily in captivity, and nourishing, but it can travel, carry weight, and is incredibly hardy. What could go wrong? Nature has the most amazing way of trying to regulating its own carrying capacity, almost like a trick that it plays on us or like a checkmate in a game of chess. Something so perfect is sure to send our species into a more than exponentially growing population that would soon drown everything else out, if it weren't for things such as disease to slow this process down. The cow was the source of at least three of these major killers. Diamond goes on to discuss how the microbes of diseases such as Measles, Tuberculosis, and Smallpox are the "agents of crowd infectious diseases"(206) and are "confined to various species of our domestic animals"(206). He states that "epidemic diseases require large, dense populations and don't afflict just any animal: they're confined mainly to social animals providing the necessary large populations. Hence when we domesticated social animals, such as cows and pigs, they were already afflicted by epidemic diseases just waiting to be transferred to us"(206). Then we transfer them to each other.

Infectious diseases like smallpox, measles, and flu arose as specialized germs of humans, derived by mutations of very similar ancestral germs that had infected animals. The humans who domesticated animals were the first to fall victim to the newly evolved germs, but those humans then evolved substantial resistance to the new diseases. When such partly immune people came into contact with others who had had no previous exposure to the germs, epidemics resulted in which up to 99 percent of the previously unexposed population was killed. Germs thus acquired ultimately from domestic animals played decisive roles in the European conquests of the Native Americans, Australians, South Africans, and Pacific islanders. (Diamond 92)

Historically, cattle were the perfect addition to our livelihood. They needed next to nothing from us except our protection. Because of the rumination process they use to digest their food, they can eat just about anything. Because of their collective and social nature by which they need to follow a dominant leader to lead them to food, water, and to keep them safe, they needed little confinement. As cows are found in large numbers all over the world, there is a huge diversity in how people of different cultures care for them.
The Masai Tribe in Tanzania probably demonstrates the most accurate version of the way in which ancient people kept these animals (Holy Cow). To the Masai, cattle are a form of wealth and the heart of their economy. All cattle are considered a gift from the great God Ungai at the beginning of time (Holy Cow). The PBS documentary "Holy Cow" is refreshing to me when it tells of how the Masai use their cattle. This group of people has the utmost respect and gratitude for this animal and treats them so. The cattle are primarily used for their milk and sometimes their blood which is drained humanely and only a little at a time. The meat from a bull is reserved for only very special occasions and only worriers are allowed to witness and take part in the slaughter. The killing is done with skilled professionalism and in the most humane way possible. Nothing is wasted and it is ritually shared. The best cuts are reserved for the elders of the group, followed by the worriers, and the women and children are served last.

The cow in India serves a much different purpose. At two hundred and fifty million strong and growing, here lies the biggest population of cattle (Holy Cow). In India, the cow is considered sacred and represents two very important gods. One is Nandi that guards the temples, and the other is the Holy Cow Karmadinu who grants all human wishes (Holy Cow). Together they are worshipped and all living cows are considered living incarnates of them(Holy Cow). Many cows are born, live, and die in the city and never get the privilege of grazing in fields. This urban cow has grown to live on human garbage; scraps of fruits and vegetables, newspaper and cardboard that are discarded in the streets (Holy Cow).

The Celts are the founders of our modern day ideal of the Western beef industry. They "occupied the difficult landscape of Britain, the narrow valleys and high country of Wales in the west and Scotland in the North. Their adaption to this rugged land created a pattern that is still in use"(Montgomery 53). Similarly to what we like to refer to as "the old west", the Celts "reared cattle by feeding at a home base through the inclement winter, taking them to summer pastures on unimproved rangeland or mountain slopes in summer, and selling lean cattle to farmers with richer pastures. Before the nineteenth century, cattle from Scotland, Whales, and Ireland went south and east to England, where they were 'finished' for slaughter"(Montgomery 53). It was in the eighteenth century that cattle breeding began and currently, there are over eight hundred different breeds that man has created by exaggerating desirable characteristics through careful breeding and selection (Holy Cow). Temple Grandin so eloquently and simply states that "With domestic animals, we are the main engine of evolution. We're constantly changing their boddies and their emotions, and it happens a lot faster than we realize"(6).

Eric Schlosser who wrote the widely popular book "Fast Food Nation" claims that our food production has changed more in the past fifty years than it has in the past forty thousand through the industrialization of livestock. In an interview given to PBS he states that "up until recently, cattle were raised on the open prairie eating grasses, but in the last forty to fifty years the feedlot system arose where cattle are being fed mostly grain and corn" among other things. Schlosser states that the slaughter houses that were a part of these feedlots are what inspired Henry Ford to create the assembly line system for automobiles... except; he states, that "slaughter houses were more like disassembly lines".
Along with some of our current day deprivature of these creatures, Cows have served as a staple of the menu for many cultures and societies, but mostly it is a staple of our current day Western "Civilization". Over the centuries, there have probably been thousands upon thousands of different ways in which to prepare beef. There is most likely recipes that exists for every part of the animal, and these recipes are constantly changing. Beef can be aged, graded, grilled, smoked, dried, braised, boiled, baked, roasted, marinated, fried, barbequed, and in some instances eaten raw. People eat it for breakfast lunch and dinner. People eat it for fast food and late night snacks in between. It is consumed at every holiday and for every occasion, and for no occasion at all. "From the westward cattle drives to Chicago's thriving livestock industry, this nutritious and flavorful meat has contributed enormously to the history of this country. What started with a few cattle brought over from Europe by the earliest explorers and settlers has now become our most complex and extensive livestock industry" (Rombauer 646).

Our Modern day industrialized cattle industry is maybe one of the ugliest way in which humans have exploited an animal which has given us as a race so much over the centuries. Schlosser tells it like it is:

The animals used to make about one fourth of the nations ground beef- worn-out dairy cattle- are the animals most likely to be diseased and riddled with antibiotic residues. The stresses of industrial milk production make them even unhealthier than cattle in a large feed lot. Dairy cattle can live as long as forty years, but are often slaughtered at the age of four, when their milk output starts to decline. McDonalds relies heavily on dairy cattle for its hamburger supplies, since the animals are relatively inexpensive, yield low-fat meat, and enable the chain to boast that all its beef is raised in the US. The days when hamburger meat was ground in the back of a butcher shop out of scraps from one or two sides of beef are long gone. A single fast food hamburger now contains meat from dozens, or even hundreds of different cattle (204).

Currently there is much debate about the health benefits of grass fed vs. grain fed cattle. Patricia Whisnat wisely states that the "grass-fed beef is higher in omega-3's, conjugated linoleic acids, and vitamin E than feedlot beef" (18). She states that the feedlot beef can't fulfill their biological instincts as ruminants which can cause them more stress that can lead to meat that may not taste as good. Not only that, but a corn and grain based diet can be unhealthy for the cow itself causing things like liver abscesses, bloat, or possibly even brain damage. Not only that, but she goes on by saying that human health is at risk due to the unhealthy amount of antibiotics that go into these feedlot cows because they live in such close quarters. "Proponents claim that grain-fed beef is more 'efficient' than grass-fed beef as it requires less land and less time, with lower methane emissions. But these arguments ignore the hidden energy costs of growing and transporting corn to the feedlots. Indeed, the Institute of Environmental Research and Education concludes that methane emissions from grass-fed cattle are more than offset by the actual grazing of the pasture itself through a process called carbon sequestration thereby the regenerating grasses 'lock' atmospheric carbon dioxide into the soil in their root system (18).

My father used to say "if you're not mad, it's because you aren't paying attention". Now; many years after he has passed away, I can truly relate to what he meant by that. The over consumption of meat in
this country is undeniable. "Studies show that being a vegan or a conscientious omnivore (whose animal products actually come from small, sustainable farms) are about equal in environmental impact. But I believe that we must weigh environmental impact against other ethical concerns, such as the treatment of animals and global access to food and water" (Taylor). Dale Lassater in "Holy Cow" states brilliantly that "we need a more ecologically sound, more humane system that fully recognizes the value of the land and the value of the cow". He talks of going back to grass roots, literally, and he has used his land to try to restore it back to its natural prairie state. He prevents over grazing of one area and allows mother nature to take its course with minimal interference.

Upon returning from school every day, I am always happily greeted by Hellboy, my neighbors steer who trots up the fence behind my car mooing. I walk down to visit him often and have sorta fallen in love with him and his googily eyes. He was named Hellboy, but we call him "baby cow". Temple Grandin describes the exact experience of a cows affection that I encounter regularly. "When a cow comes up to explore you, it's always the same. They'll stretch out their heads toward you ad sniff you; that's always first. Then the toung will reach out and just barely touch you, and as they get less afraid, they'll start licking you. They'll lick your hair and start chewing on it, and they like to lick and chew your boots, too"(46). She is right when she says "People and animals are supposed to be together. We spent quite a long time evolving together, and we used to be partners. Now people are cut off from animals unless they have a cat or a dog"(6). I am well aware that my neighbors are going to eat baby cow, but in a way, I am at peace with it only because I know he is a happy cow and because we all love him. I know I won't be able to eat him, but in my mind, he is one less cow that will be standing packed together in Harris Ranch on the stinky side of I5.