of which we are still unfamiliar with. While research has been able to provide us the cause-and-effect relationships of certain therapies, those relationships only hold true under a certain, pre-determined set of circumstances. Little is known about the systemic consequences of regulating certain genetic pathways and it is for this reason that genetic therapies have not yet been employed to their full potential. Further research needs to be done before these methods can safely be used to effectively treat human injury and disease.

However, we should not underestimate the power and potential of these novel methods. With time, as with most innovations, progress will enable us to use them in effective and efficient manners to reduce the health and fiscal related impacts of disease. Treatments may one day solely consist of these non-invasive therapies which prove to be effective without the use of synthetic treatments. The human genome carries the potential to become the most effective treatment for curing genetic diseases and acquired injuries, decreasing the impact of humanity's most disabling disorders and conditions.

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ON PHYSICIAN ASSISTED SUICIDE

By Benjamin Mormann

"When a species persists in a changing environment, however, evolutionary adaptations it has acquired can come to clash with the new environment in novel ways. The emotion we feel when exposed to death has infiltrated a new realm – one it may or may not belong in. This realm is in the arena where today's hot debate over the phenomenon of physician assisted suicide is contested."

Nothing moves us quite like death does. As organisms, we are evolved to survive so that we may reproduce. A key player in promoting our survival is emotion. Our feelings drop to the deepest trenches when our loved ones die, we hand over a social contract to feel protected, and we become uncomfortable when people commit suicide. Our ability does its job well- people, for the most part; want to stay alive for themselves and for others. When a species persists in a changing environment, however, evolutionary adaptations it has acquired can come to clash with the new environment in novel ways. The emotion we feel when exposed to death has infiltrated a new realm-one it may or may not belong in. This realm is in the arena where today's hot debate over the phenomenon of physician assisted suicide is contested. In order to produce a fair assessment of the ethicality of physician assisted suicide, we must look at it as objectively as possible. We must recognize, then cast aside the aspects of the debate which pick at our feelings. Further, we must edit the frame through which we currently view debate, where arguments and support may not, when given a closer look, be reasonably applicable. The material we choose to incorporate into the new, improved frame must sprout from the roots of our civilization-the same roots that have shaped who we have become.

The American Medical Association defines physician assisted suicide (PAS) as, "when a physician provides a patient with the medical means and/ or the medical knowledge to commit suicide." (3) Chronic suffering in patients is not all too rare. As long as medicine is not complete or perfect, there will be patients who past a certain point, can no further be medically helped. These patients may feel unbearable amounts of pain, whether it be physical or mental. Most are aware that they stand no chance of recovery, and some think of the mounds of money spent on their healthcare, and the burden they put on their friends and family. The sum of these reasons and others associated with them may cause a patient to make a decision that will put him at ease- the decision to end his life. In PAS, the patient communicates this to his doctor, who, with the best interest of the patient in mind, prescribes a lethal dose of medication for the patient to consume himself.

As it can tint the debate, common confusion and misrepresentation over physician assisted suicide versus a phenomenon called euthanasia must be cleared up. The case of infamous Jack Kevorkian (22), who illegally performed euthanasia to a number of his patients throughout his career as a doctor, remains a disturbing memory to many Americans, making them skeptical of assisted suicide. Found guilty by the Michigan jury, Kevorkian was sent to prison for 10-25 years on convictions of second degree murder, and given a bad name in the media, coined "Dr. Death". Our memories of this incident may serve to cloud our thinking as we naturally associate what Kevorkian did with PAS. We must realize, however, that euthanasia and PAS are significantly different. The American Medical Association describes euthanasia as, "the administration of a lethal agent by another person to a patient for the purpose of relieving the patient's intolerable and incurable suffering." (1) The difference between the two is palpable and significant: in physician assisted suicide, the doctor provides the means to commit suicide *for* the patient to administer him or herself, while in euthanasia, the doctor administers the drug *to* the patient directly. The manifest line that separates the two is, as Drexel University puts it, "that in assisted suicide the patient is in complete control of the process that leads to death because he/she is the person who performs the act of suicide."(6) Even with assurance that the event will occur in this manner, the question of whether or not it should be allowed is a subject of hot quarrel today. The American Medical News explains how PAS is legal in just three American states: Oregon, Washington, and Montana. (2) Oregon's legalization of PAS has served as a bell to other states which either have already followed suit or now move closer to legalizing the act. In the first two states, "Death with Dignity" laws have been passed which allow terminally ill, mentally competent patients who are eighteen or older to die with the assistance of a physician.(4) Montana and Washington effectively legalized PAS just two years ago. Since then, the fire of the debate has only amplified. If we wish to perform a thorough examination of this debate to discover truth, we must begin with square one- the *name* of the subject being debated.

Physician Assisted *Suicide*. The last word stings. Most people would rather not think about it- it summons a particu-

lar type of sadness that can make us especially uncomfortable, and it is denounced in many religions. Many Americans believe that life is a gift and life is good, so they are disillusioned when they hear of someone who has ended their own life. Further, suicide is not *normal*. We live in a country where a certain degree of normality is required in order to fit in and be a part of a whole society. Those who stray too far from the norm are out casted, because the normal people, who compose a majority, cannot easily identify with the others. As the Stanford Encyclopedia of Philosophy explains, the people in this "normal" group have an "inability to directly occupy the mental world of the suicidal." (20) We just do not understand those who are suicidal, thus we naturally fear them. Although we may not look upon these people with esteem, we must recognize that our distaste may be caused not by our perception of moral corruption or evil in the act but rather by our natural tendencies to accept that which is normal and push aside that which we do not understand. Further, physician assisted suicide is likely entirely different from the idea conjured up when a normal person thinks of just "suicide". PAS is intricate, involving a suffering patient whose condition is often so miserable that a normal person *might* even be able to understand their choice to end their misery. Anyways, those people who still would not understand such a choice are looking in from the outside, not experiencing and thus truly understanding the agony that the patient feels. In each state where laws have been made in America so far, specific provisions have been included which limit PAS so that it may be used only by those patients who are dying already and who are ready to make such fateful decisions. Looking at physician assisted suicide as just "suicide" gives a false impression that is unreasonably and unjustly biased.

Such is the case too when physician assisted suicide is presented as *killing or murder*. Opponents of PAS believe that the line must be drawn before we *kill* or *murder* anyone. In a Wall Street Journal study in which doctors were asked whether they were in favor of, or opposed to physician assisted suicide, forty-one percent of doctors were opposed, citing a prominent reason of "assisted suicide is *murder*." (11) These words are especially piercing to us. When we hear them uttered, our minds may jump to images of a burglar shooting an innocent father, or the famed horror movie character "Freddy" slashing down his next victim. The prospect of our own or our loved ones' death is perhaps *the* most frightening reality that humans know. So, when we hear these words be used in the debate over physician assisted suicide, we react in disapproval- perhaps thinking to ourselves, "patients can resist treatment if they want, but *killing* is just crossing the line." The words *killing* and *murder*, however, may give us inaccurate ideas about what goes on in PAS. Firstly, in PAS, the patient himself is the one who actually consumes the lethal drug. If the doctors who provide the patients with the lethal drugs are considered to be killers or murderers, then so should the cashiers at gun shops. Secondly, the classical ideas we naturally associate with killing and murder look nothing like what actually happens in PAS. Once again, PAS occurs in a controlled environment where the patient is experiencing real and unending suffering. The words killing and murder are the secret weapons of those who oppose PAS, because although they may be technically accurate, they cause people to get worked up with ideas which look nothing like what occurs in PAS. Using the words in this way is a classic example of "baloney" in Carl Sagan's Baloney detection kit. (19) To give physician assisted suicide a fair chance, we must recognize and neglect these dirty tactics which provoke cognitive error.

Some people may argue that PAS is killing or murder because of their religion. The sacred text of Christianity, the most prominent religion in America, denounces suicide as a grave sin. From the book of Corinthians in the Holy Bible, "What? Know ye not that your body is the template of the Holy Ghost which is in you, which ye have of God, and ye are not your own? For ye are bought with a price: therefore glorify God in your body, and in your spirit, which are God's." (12) Christians believe that the human body is the product and property of the creator- God. For a person to take his or her own life is to destroy divine formations and to go against the will of God. Anyone has every right to believe this if they so choose. But does the Bible hold the final word? Do we live in a society where religion and rule are intertwined? In fact, we live in a country where every citizen is equal and where church and state are separated. Religions are belief systems, and beliefs held by one person are equal to the beliefs of another. Suicide happens to be mentioned in the Bible, but this should not serve to give one side of the debate leverage over the other. Such is consistent with the firmly grounded ideals of equality and freedom of religion in America.

Truth can be discovered by examining our core American principles to determine if physician assisted suicide fits in the picture. Civil rights and liberties are two hallmarks of American political culture associated with the social contract- the idea that we as citizens give up some of our power so that a government can create a safer, fairer world free of chaos. Civil rights, expressed as the first ten amendments to the U.S. Constitution, exist because only with their guarantee would the final states ratify the submitted Constitution- this was effectively part of the deal of the social contract. Having just been oppressed by the British government, Americans were very concerned about the hazards of centralization and arbitrary rule and rightfully demanded some guarantee of protection from the government of certain fundamental "rights" that the government could not lay a hand on. Since their introduction, these rights have proven to be paramount parts of what it means to be American, as they have been taken into consideration when forming public policy and been referred to constantly in court rulings across America. A theme of non-arbitrary governmental rule emerges form the ten individual rights. We as Americans want to be self-determining. One matter that is extremely personal and especially fitting in the category of "self-determination" is the decision about the continuation or termination of one's own life. This is a matter that can be argued to cross the line established in our social contract, as government interference in such a zone, it seems, would not be constrained within America's set boundaries. In the words of philosopher Jean Jacques Rousseau, "the social contract is such that every man has a right to risk his own life in order to preserve it." (23) This idea holds that it is a man's own choice to do with his body what he like, as long as he acts in his what he determines to be his best interest. If this means ending his life, then it remains justified.

The issue could also be viewed from a different angle, however, where the citizen agrees to sacrifice some of his power for the betterment of society, and is limited by what the institution of authority stipulates as disallowed, as suicide may be on the list of what is disallowed. John Locke and Thomas Hobbes were two enlightened philosophers who believed that suicide should be banned. In Leviathan, Hobbes wrote, "A law of nature, *lex naturalis*, is a precept, or general rule, found out by reason, by which a man is forbidden to do that which is destructive of his life, or taketh away the means of preserving the same, and to omit that by which he thinketh it may be best preserved" (10) He believed it to be natural and right to do all that one can in order to live, and immoral to desire to die. Hobbes and Locke both justified their beliefs off of "natural law." They may have failed to make an accurate distinction between the processes in human societies versus the rest of nature in the world. Humans do not participate in many processes which are thought of as "natural", or existing in nature. *We* have the principle of a social contract, which breeds government and man-made laws. This serves to go against the chaos and selection processes which would be "natural." Humans, thus, are open to be in original situations which deviate from classical "nature", as we have the power to modify the world around us. We thus continuously develop and change our own "nature". Locke and Hobbes did not seem to recognize this concept in their published works.

Civil liberties are liberties guaranteed by the government which serve to protect people from other people. James Madison, in Federalist number 10 of the *Federalist Papers* writes of the "tyranny of the majority", in which he warns that a whim in a society can threaten those of the minority in disastrous ways. Because of this, he argues, a set of fundamental, untouchable liberties should be guaranteed to each citizen so that they may be given a chance to persist unharmed in midst of a "faction united and actuated by some common impulse of passion, or of interest, adverse to the rights of other citizens, or to the permanent and aggregate interests of the community." (8) Life, liberty, and property, he argued, should always be safe and beyond reach. We may think of one's own life as being their ultimate property, yet a certain legal case views things differently. In *Washington vs. Glucksberg*, although the district court ruled oppositely, the Supreme Court ruled unanimously that the right to be assisted in committing suicide was not protected by the "due process clause" of the fourteenth amendment. (24) Glucksberg's argument was grounded in this clause which forbade the government from "depriving any person of life, liberty, or property, without due process of law." (21) The Supreme Court, however, responded that the "'right' to assistance in committing suicide is not a fundamental liberty interest." Their argument held that assisted suicide did not fall into the category of, "life, liberty, or property".

Although we rightfully cherish our rights and liberties, Americans can also have the tendency sometimes to bow down *too* much to tradition. The Hippocratic Oath is a major influence on today's medical ethics. The argument that PAS would go completely against the Hippocratic Oath inspired vision of the doctor as the healer and life-giver is true, and brings up the question of weighing ends versus means. The hole in this argument, however, is that these ideas are *derived* from the bigger principle that the doctor exists and acts for the beneficence of the patient. The overwhelming majority of the time, this beneficence involves promoting health and life. Yet in the small amount of cases where patients actually believe that they would be benefited by having their life taken, the beneficence involves the opposite. In the Wall Street Journal study described previously, a common reason given in support of their response by the forty-six percent of doctors who were in favor of PAS was, "I'd want it for me when the need arises". Also, in a Journal of the American Medical Association (JAMA) report, fifty-nine percent of doctors surveyed in Oregon disagreed with a statement that "writing a lethal prescription for a patient under the Death with Dignity Act [is] immoral and/or unethical." (7) We must realize that the images conjured up in our minds of doctors are caused by what the doctor does the majority of the time. Just because an exception to these images presents itself does not mean the doctor's principle role has been scathed, or even changed. In the end, the doctor is still acting in the best interest of the patient- only the means changed. If the means used stem from the patient's own choice and action, and the doctor's utmost priority is to provide for the beneficence of his patient, then the ends seem to justify the means.

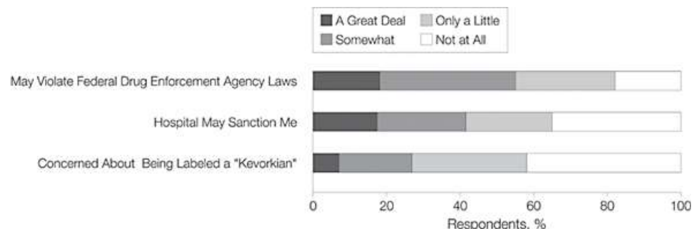
Another argument referencing the Hippocratic Oath is caused by the fact that we tend to put it up on a pedestal so that it sits above reach of anyone today, and every last line becomes glorified. In the oath, the line, "I will not give a lethal drug to anyone if I am asked, nor will I advise such a plan", is often used in the debate on physician assisted suicide. When we hear this, however, we must remember that times change. The overall theme may be forever, but some of the specifics written about in ancient texts seem absurd in today's world. The bible, for example, bans divorce, yet between forty to sixty percent of all new marriages in America today will end in divorce. (25) Also, Hippocrates, in his famed oath wrote, "[I swear] to hold him who has taught me this art as equal to my parents and to live my life in partnership with him, and if he is in need of money to give him a share of mine, and to regard his offspring as equal to my brothers in male lineage". These ideas are out of the question today, as students and their teachers do not share such close relationships. Hippocrates also wrote, "[I swear] to teach

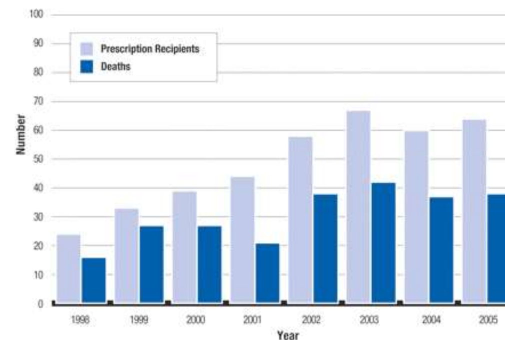
[my teacher's offspring] this art–if they desire to learn it–without fee and covenant; to give a share of precepts and oral instruction and all the other learning to my sons and to the sons of him who has instructed me and to pupils who have signed the covenant and have taken the oath according to medical law, but to no one else." (16) Once again, this has no place in our society today. What we *can* do, however, is take away an overall theme such as, "I promise that when I am a skilled, knowledgeable, and experienced doctor, I will play my part in teaching the next generation of young doctors", we just cannot hang on every word in the oath. The tradition of medical students reciting the Hippocratic Oath at their medical school graduations is more to vow to be an ethical doctor than it is a promise to follow the every word of Hippocrates. Returning to the line used to denounce PAS, we must understand that the situations that some patients become stuck in today were not only inexistent, but also unimaginable in the times of Hippocrates. Back then, religion and policy were mingled unlike today, and medical knowledge that now allows us to know when patients have a terminal or other irreversible condition was inexistent. Also, because of vast advances in medicine, patients rarely survived long enough to be in the situations that suffering patients desiring PAS are in today. (13) This is why fifty-three percent of respondents in the JAMA report, "would consider obtaining a physician's assistance to end their own lives." If we can realize that we see a different world than Hippocrates did, then we will be able to abstain from making the error of being too attached to our aged sacred texts and thus make the debate more rational.

The fact that we have entered a new kind of world may not only suggest that we need to take a fresh look at old ideas, but also suggest the inevitability of an associated necessary change in policy. Throughout all of American history, changing times have called for changes in how we govern. When big corporations began forming in America at the turn of the nineteenth century, progressivism emerged as we called upon Teddy Roosevelt, the "trust buster" to regulate businesses in new ways so as to maintain market competition that would otherwise be adversely affected. The call for physician assisted suicide is due to a changed world too. America is no longer dependent on religion for governance, more rational and empathetic about the conditions of others, and more advanced and learned in medicine. This is why a new trend in changing PAS policy started in 1994 with Oregon's "Death with Dignity" Act, why two more states have since followed suit, why other states are currently fighting to follow these examples, and why, in the JAMA study, "fourteen percent of physicians reported that they had become more willing to prescribe a lethal medication since 1994."

In the "Death with Dignity" laws passed so far, numerous stipulations are listed which are purposed at minimizing the potential for abuse of PAS, such as the minimum age of eighteen, and the fact that the patient must be deemed mentally competent and terminally ill. Nevertheless, any introduction of new power comes with new abuse even in the presence of rules to prevent it, as risk can never be completely eliminated. The question, then, becomes: do the potential benefits of PAS outweigh the potential costs in abuse? This question can perhaps be explored by looking at other conventions in the medical world which serve to benefit people yet are subject to abuse by the doctors who employ them. Morphine, for example is extremely useful in relieving pain, and has allowed an incredible amount of people worldwide to survive when they would otherwise not be able to live with such degrees of pain. The Journal of the American Medical Association, in a different article on the history of pain management, describes morphine as, "cheap, reliable, readily available, and with extensive documentation of efficacy—remains the mainstay of cancer pain treatment today." (15) It is also abused. Doctors can administer lethal overdoses to patients. In fact, surveys from numerous institutions including Glasgow University' Institute of Law and Ethics in Medicine (14), and the Hospice Patients Alliance (17) report that from around five to fifteen percent of different doctors in various hospitals admit to having already participated in PAS. Other drugs and injections are used to "mercy kill" illegally in hospitals today as well. Potential for abuse lives everywhere in any given medical environment- risk is everywhere. (18) From the U.S. 9th Circuit Court of Appeals, "recognition of any right creates the possibility of abuse." (5) In order to give physician assisted suicide a fair chance, we must recognize this while still doing all that we can reasonably do to minimize potential for abuse. If it is found that the costs of the abuse will hurt people more than benefits of the proper use, then PAS should not be allowed; if the reverse is true, then it should.

Since physician assisted suicide is legal in three states already, we can observe how it has been running within them to give us a solid clue about how it will run elsewhere. According to the Journal of the American Medical Association study on Oregon doctors, "among the [59% of] physicians who were not morally opposed to writing a lethal prescription, 58% were at least "a little" concerned about being labeled a 'Kevorkian' if they wrote a lethal prescription, 82% were concerned that writing a lethal prescription might violate federal Drug Enforcement Agency law, and 65% were concerned that their hospital might sanction them." The doctors seemed to be easing into the change with caution. Less than thirty of the ten thousand deaths in Oregon in 1999 were due to physician assisted suicide. There seemed to be little harmful costs from abuse of physician assisted suicide. Benefits, on the other hand, were visible. Besides the few patients who actually took advantage of PAS by ending their lives, its legalization served as a sort of wake up call to improve care for terminally ill Oregonians. A telling sign of this is that, "in 1994, 22% of all deaths in Oregon occurred in persons enrolled in hospice; by 1999, the proportion had increased to 35%." The fact that community hospice did not significantly expand in the years in between suggests that awareness among physicians of these services increased. Benefits seem to outweigh costs by a substantial margin in Oregon, so we can predict with a certain degree of confidence that this will be the case in other areas in America if PAS is legalized.





The point about costs versus benefits is tied to the argument about the "slippery slope" we could fumble down if we decide to take the first step of legalizing PAS. We have the capability to make such arguments for almost anything new-what separates the legitimate arguments from the "baloney", however, is solid evidence, as emphasized in *Argumentation: The Study of Effective Reasoning, 2nd Edition*. (26) Dr. Herbert Hendin, professor in the Department of Psychiatry and Behavioral Sciences at New York Medical College, points out some evidence: "Over the past two decades, Dutch law and Dutch medicine have evolved from accepting assisted suicide to accepting euthanasia, and from euthanasia for terminally ill patients to euthanasia for chronically ill individuals." (9) If we accept that this could occur in America as well, then we must move on to question whether the effects of the slippery slope are positive or negative. Some may argue that the effects are positive, as they make physician assisted suicide more available for suffering patients, while others may feel that allowing euthanasia is crossing the line, as it involves the direct "killing" of a patient by a doctor. America in particular may be especially fearful of euthanasia, as the word triggers memories of Jack Kevorkian, who was given a bad rap. Sometimes, because of their condition, patients are unable to administer the lethal drugs to themselves, so euthanasia could ensure that all patients have access to the opportunity to end their lives. On the other hand, the doctor himself administering the drug introduces a whole new set of edgy ethical questions, as those who stand behind the argument of the "slippery slope" may argue.

Some of the debate on physician assisted suicide is, like parts of any debate, covered in baloney. On a whole, however, the arguments against PAS seemed to be covered in more depth than the arguments for PAS. Throwing out the words "killing" and "murder" clouds the rational thinking which is necessary to discover truth in any debate, and paints a picture of PAS which is a poor representation of the situations and occurrences associated with PAS. Categorizing PAS as just "suicide" does the same. When we look at what really happens in physician assisted suicide, we find a suffering patient making an extremely difficult and intricate decision about his own fate. These situations are made possible by a changed world, where old ideas and philosophies may no longer have places. We look instead to what it means to be an American Citizen. Our civil rights and liberties give us a certain degree of personal freedom so that we may make of ourselves what we choose. As we are generally able to determine our own lifestyles as long as they do not come to harm society, then it seems we should be able to make the choice of physician assisted suicide, as it directly regards solely our own lives, and does not serve to blemish others in society. Although those who are of religions denouncing any form of suicide may claim otherwise, they

must learn to live with it, as their beliefs are merely beliefs with no clout over policy. We increasingly live in a world based off of progression, knowledge, and reason. Soon, we will realize that it is time for physician assisted suicide to be legalized.

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About the Author

Ben Mormann is a biology major and aspiring physician/scientist in the Presidential Honors Scholars program of the College of Arts and Sciences. He is a recent recipient of the Chair’s Award in Biology, and the Dean’s Undergraduate Research Grant. Ben enjoys working in Dr. Desplan’s lab, where he uses the fruit fly as a model to study color vision. He works closely with the manager of the Ambulatory Surgery Center at the NYU Hospital for Joint Diseases to improve methods of hospital communication, information logging, and both patient and employee education. In addition, he makes presentations for the hospital which are used in various capacities. He starts on the NYU men’s water polo team and composes music with his band back in his home state of Maryland.

Help Them to Help Us: Why Sustaining Certain Plant Species is Incumbent on Us

By Gregory Rubinfeld

“No disease in history has caused more deaths than malaria and as a result the medical utility of the Cinchona tree is virtually immeasurable.”

Despite our understanding of the vast benefits plants bring us, including the many salves and medicines they provide, we are exploiting particular species in certain areas by overharvesting them. If we continue to overharvest in a careless fashion we may ultimately deplete these species. Plants are not only a current staple of the medical world but are also a veritable treasure chest of undiscovered medicines and therapeutic substances. This immense boon for healthcare can experience a decline if we do not take greater care in our treatment and harvesting of the medically useful plants. In this article we discuss a few plants that are of particular interest in the medical field, explore how they are medically useful, and consider methods for sustaining these plants.

The first plant that will be introduced, the Cinchona tree, provided us with the primary treatment to the most debilitating disease in human history. The second plants, Voodoo Lilies and Willows, are of particular interest for their intriguing chemical mechanism of action. The third plant that will be explored, the Madagascar Periwinkle, has incredible documented results in its various treatments of a wide array of illnesses. The fourth plant, the African Cherry tree, functions in a detailed gene regulation that results in its ability to combat cancer cells. The final plant type that is discussed, the medically useful pulses, introduces a method of sustainability that benefits us while simultaneously benefitting plants.

Since the seventeenth century, extracts from the bark of the Cinchona tree called quinine have been used to treat malaria (Griggs et al 2011, page 19). No disease in history has caused more deaths than malaria and as a result the medical utility of the Cinchona tree is virtually immeasurable. The ringed structure of quinine effectively combats malaria by inserting itself into the DNA of the parasite and disrupting replication and transcription (Lexi-Comp 2009). In order to reduce the amount of Cinchona trees harmed by the extraction of quinine, scientists have synthesized artificial drugs to work like quinine in order to combat malaria. Unfortunately, malarial parasites are developing resistance to the artificial treatments. As a result, doctors are being forced to use natural quinine and the Cinchona trees are being exploited consistently. Consequently, the number of trees in South America has experienced a marked decline (Griggs et al 2011, page 19). In an effort to preserve these plants, many organizations have worked to disperse and grow the trees in many environments. The British and Dutch established plantations by using Kew Royal Botanical Gardens as a resource to send seeds to India and Sri Lanka (Griggs et al 2011, page 19). Even now, scientists

“Because 53 tons of the plant produces only 100 grams of medically useful drugs, the plant needs extra protection from the risk of overharvesting.”