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The Royal Disease and The Royal Collapse:
Political Effects of Hemophilia in the Royal Houses of Europe

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Honor Scholar Senior Project, 2017

Sponsored by Dr. Rebecca Upton

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Preface

Ever since I was a small child, the lives of queens and princesses have fascinated me. The lives of monarchs often are complicated by their political roles and greatly affected by tragedy, leading to compelling biographies. Russian history and the collapse of the Romanov house has interested me since middle school, likely due to my interest in the Slavic world due to my Czech and Polish heritage. As a political science major, international relations has been my main body of work, and I have long been interested in the collapse of the monarchy in favor of republican governance (or communism, in the case of the Soviet Union). The particular tragedy of royal life that interested me was the health of the Tsarevich Alexei, and how his disease influenced the personal lives of his immediate family, all of whom met a tragic end. The Russian case sparked my interest in how a medical tragedy can affect the personal family life as well as political aspects of a state when it appears in a powerful family. This project was born from the idea of combining the study of personal tragedies of royalty with my interest in Russia and international relations.

Introduction

Europe is famous, in part, for its historical tradition of monarchies. For centuries, monarchy was the dominant form of government across the continent. The political collapses of monarchies following World War I changed the course of world history and became a turning point for the proliferation of democratic governments throughout Europe. When looking back on the collapse of these systems of governments, we can pull important bits of information about family connections, health, and genetics and their influence on the political sphere. While the health of leaders has been discussed numerous times in historical study, there has been a very limited body of research on the effects of genetically inherited disease, specifically hemophilia,

on the politics of late nineteenth and early twentieth century Europe. By examining the effects of hemophilia in Europe from 1853-1918, we can understand broader implications of public perception of health in public figures, stigma and blame associated with gender and disease, and how the medical can affect the political.

Hemophilia: “this awful disease, the worst I know” - Queen Victoria, 1900

Hemophilia is a disease that has existed for thousands of years - as long as humanity has been recording history. The name of the disease comes from Greek, literally translating to “love of blood,” a fitting name for a bleeding disorder (Halbrich 264). In ancient Egypt, women were forbidden from having more children if their firstborn son bled to death following a minor wound. The Jewish Talmud allowed exceptions to circumcision if two successive sons fatally hemorrhaged following the operation (Massie, “Nicholas and Alexandra” 146; Halbrich 263). Though the disease has existed for much of human history, hemophilia became famous as “the Royal Disease,” which plagued the royal houses of Europe that descended from Queen Victoria. At a time when monarchies were weakening and struggling to hang onto power, the disease emerged in the royal families of Europe, causing familial difficulties and exacerbating the worsening political issues facing European monarchies. At a time when monarchs were symbols, a perceived “imperfection” caused difficulties internally and externally for the royal families. Passed through the maternal line, it had unique social consequences for women. In order to understand the potential political effects of hemophilia, one must first understand the disease itself.

What is Hemophilia?

Hemophilia is an incurable, sex-linked, hereditary bleeding disease, or “an everlasting bloody nuisance,” in the words of one afflicted man (Potts and Potts 51). Hemophilia originates

from a recessive gene on the X chromosome (Corcos and Monaghan 287). Males have an X chromosome from their mother and a Y from their father while females have an X from both parents, making males XY and females XX. The disease mostly affects males, while females who inherit the gene are carriers for the disease. Having two X chromosomes prevents females from becoming symptomatic, since the normal gene on their other X chromosome will balance out the abnormal gene through a process called X-inactivation, where one of the X chromosomes is “silenced” and not expressed (Ahn and Lee).¹ Males, having only one X chromosome, are unable to compensate and override the trait, leaving them susceptible to mutations on their X chromosome (Potts and Potts 58). A hemophiliac father will not pass the disease on to his sons because his sons cannot inherit an X chromosome from him, but all of his daughters will be carriers. A woman would need two copies of the gene to be a hemophiliac, and she would not survive past puberty, as menstruation is fatal. There is about a fifty percent chance that a woman will pass the gene onto her offspring, whether to daughters as a carrier or to a son who will have hemophilia (Sherman 9-10). However, a woman may not know if she is a carrier. She may have all unaffected sons by luck or chance, or all daughters, only to see the disease appear in her grandsons (Potts and Potts 54).

Symptoms and Treatments

The gene causes a missing clotting factor in the blood, meaning that blood can takes days instead of minutes to clot (Sherman 8). Depending on the form of hemophilia, either clotting factor VIII (Hemophilia A) or factor IX (Hemophilia B) is missing. Hemophilia B is much rarer

¹ X-inactivation can famously be seen in calico cats, which are exclusively female. In cats, fur pigmentation is X-linked, and the different coat colors represent the sections of the body where the X chromosome inherited from their father is expressed and where the mother’s is expressed. Random X inactivation, meaning that not just one X chromosome is activated but sections of both are activated, as seen in humans, likely evolved to “alleviate the burden of maternal X-chromosome mutations,” which it does in the case of hemophilia (Ahn and Lee).

than Hemophilia A; the B form of the disease only affects about one in fifty thousand males (Rushton, "Leopold" 458). The severity of the disease is determined by how much residual clotting factor is left despite the missing one; this can vary from patient to patient. Hemophilia is considered severe when only one percent of clotting activity is present (Rosendaal et al.). A DNA analysis conducted posthumously on the Russian royal family concluded that the royal disease was a severe form of hemophilia B caused by a mutation creating a gene splicing site. A gene splicing site is where the expected DNA base is changed to a different base, subsequently causing a mutation in the genetic code and resulting in a different phenotype, or physical representation of the genome. In this particular site, a space where there should be an adenine base is instead replaced with a guanine base (Rogaev et al. 817). In the grand scheme of mutations, hemophilia is considered mild; those who have the mutation in their DNA will still live (Potts and Potts 59). However, their quality of life, especially in the nineteenth century, was likely to be quite low due to the painful symptoms and treatments.

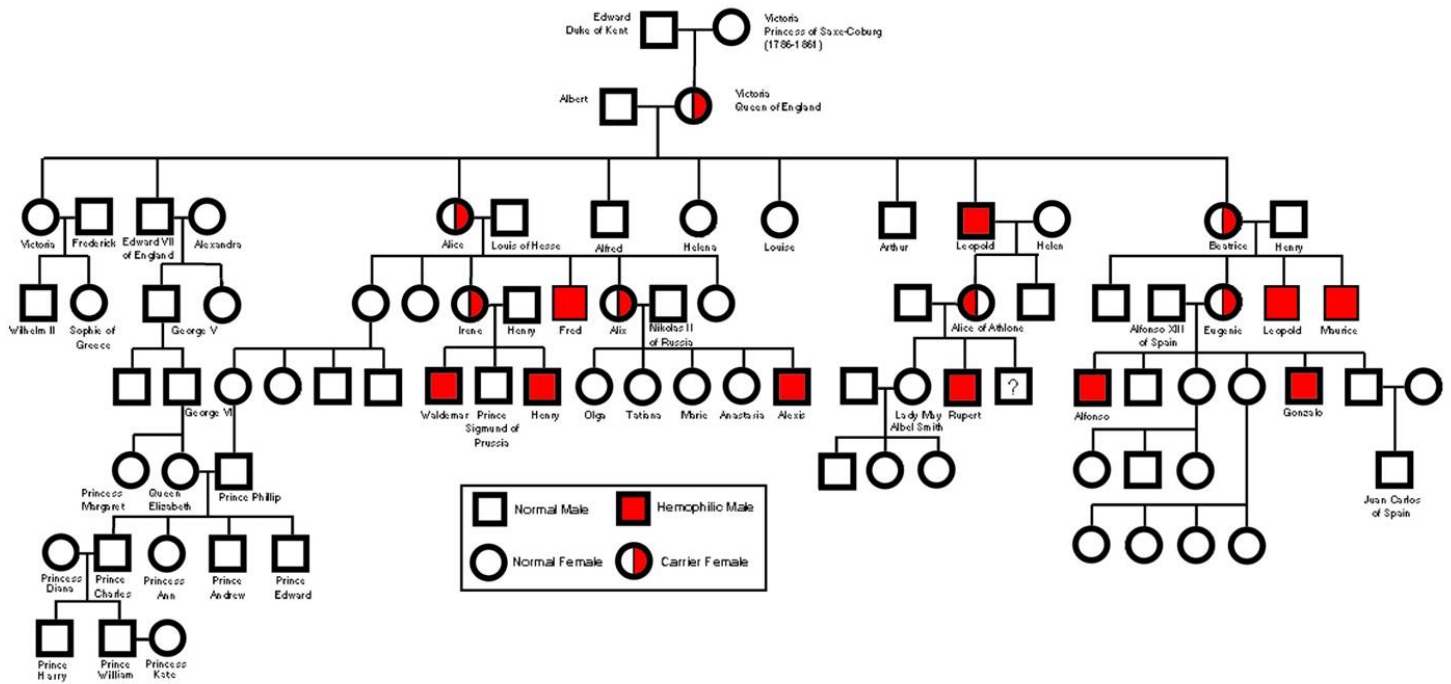
Symptoms of the disease can vary based on severity of the disease. More minor cases will present themselves with fewer symptoms and faster clotting than more severe cases. Hemophilia will often pass unnoticed until the child begins to walk, as bleeding does not tend to occur at birth or the cutting of the umbilical cord (Potts and Potts 52). Severe hemophilia often manifests with spontaneous bleeding in joints and muscles, while mild cases will bleed only after trauma (Rosendaal et al. 6). All hemophiliacs suffer from bruising, nosebleeds, bleeding after injury, and bleeding into the joints, with the seriousness relative to the severity of the disease. Bleeding can be external or internal, and can originate from anywhere - skin, nose, intestines, and joints (Potts and Potts 52-3). Patients suffering from severe hemophilia will often also have arthropathy, a disease of the joints resulting from frequent bleeding into the joints, which can prevent patients

from walking or impair other movements, and may permanently disable them. These symptoms can be incredibly painful and long-lasting, especially before treatment options were available.

In the late 1800s and early 1900s, the treatments in Europe were sometimes even worse than the disease itself. Some patients were bled even more, a common medical practice at the time. Several patients died from leeches, cupping, or vein letting. In 1894, Queen Victoria's doctor was still endorsing bloodletting as a treatment option for hemophilia; he was later knighted for his contributions to medicine (Potts and Potts 60). There was little that could be done for hemophilia patients' joint bleeding other than applying ice and putting the patient on bedrest (Rappaport 110). Any attempts to let the pooling blood out of the joint often resulted in death (Potts and Potts 60). Wounds were wrapped and elevated in the hopes that the bleeding would stop sooner rather than later, but the bleeding could last from days on the shorter end to many weeks (Halbrich 266). The lack of treatment meant that inheriting the disease was almost certainly a death sentence: "about 50% of affected boys would die before age seven and only 11% reached age twenty," with an average life expectancy of thirteen years old (Rushton, "Royal Maladies" 6; Rappaport 81). Part of the inability to treat was due to a lack of knowledge about the disease. It was commonly believed to be caused by damaged or thinned blood vessel walls that made them more liable to rupture, rather than an issue with clotting (Rushton, "Royal Maladies" 15). At least one doctor called it the male equivalent of menstruation (Potts and Potts 51). It was not until 1891 that it was discovered that hemophiliacs' blood took longer to clot in a test tube than average blood (Potts and Potts 51-2). However, even as knowledge of the disease advanced, the life expectancy for the disease remained around twenty-five years of age until the 1960s (Rosendaal et al. 8). Research developments in the 1960s revolutionized how hemophilia was treated.

In 1964, Judith Pool purified the clotting factor VIII. Soon after, factor IX was isolated and purified, making clotting factor replacement a viable option for hemophilia treatment (Rosendaal et. al 7). Clotting factor replacement is the most widespread treatment and allows for most patients to live for almost as long as non-affected persons (Rosendaal et al. 7-9). Clotting factors could be administered at home starting in the 1970s, which allowed for quicker treatment of hemorrhages, resulting in less severe joint trauma and a shorter healing time after an episode. Preventing joint damage with quick treatment also leads to a decrease in chronic joint conditions that lessen quality of life for a patient. Clotting factor treatments also decreased patients' absenteeism from work and school: "before clotting factor products were available, many hemophilia patients did not receive adequate education" because of more frequent bleedings, long hospital stays, or recovery time (Rosendaal et. al. 8). The treatment options available now revolutionized living with hemophilia, but such options were not available during the tenure of the royal families of Europe who were affected.

Inheritance of Hemophilia in the Royal Houses of Europe



(Pedigree Analysis of Queen Victoria's Descendants, Via National Center for Case Study Teaching in Science, University of Buffalo)

How exactly the hemophilia gene ended up in Queen Victoria's family is a mystery to scholars; the disease seems to have appeared in the family out of nowhere, during the period of European monarchies' decline. Given its later fame as "the royal disease" and rapid spread throughout famous historical figures, scholars have intensely speculated over how the gene could have appeared within the royal family when it had previously only been observed in the general population. Could Queen Victoria have been illegitimate? Did the mutation occur in Victoria, or in one of her parents? In order for Victoria to be a carrier for hemophilia, the disease had to appear on one of her X chromosomes; as a female, she inherited one X chromosome from her mother and one X chromosome from her father. Her mother, Victoire, had two children from her first marriage; her son did not have hemophilia, and her daughter did not have any children with the disease and their children also did not appear to be affected. The disease was also not present in any of Victorie's ancestors, making it unlikely that Victorie was a carrier (Potts and Potts 65-

6). While marital infidelity is not uncommon in aristocracy, it is unlikely that Victoria was illegitimate. Given that Victoire was not a carrier, her biological father would have to have been a hemophiliac; a liaison between the Duchess of Kent and a hemophiliac male is extremely unlikely to have occurred (Potts and Potts 77, 80). Many have concluded that the most likely explanation is that the mutation either occurred randomly in Queen Victoria or was inherited from her aging father, who was over fifty and therefore more prone to mutations in his sperm (Jobling 1; Halbrich 263; Potts and Potts 66). The Duke of Kent was not a hemophiliac and therefore would not have passed the gene onto Victoria without a mutation occurring in his sperm during his later life. However, this is an extremely rare mutation, occurring in 1 in 25,000 people at most. These odds are similar to being killed by a lightning strike (Potts and Potts 66). Given the inheritance of the gene in so many of Victoria's descendants, it's most likely that this extremely rare mutation occurred in her father's sperm and was passed on to her. Due to Victoria's extensive reproduction, the gene was quickly spread throughout the European continent as her children married into various other royal houses.

As can be seen in the pedigree analysis above, Queen Victoria had numerous descendants that were affected by the disease as patients or carriers. Her "affected progeny would include one son, three grandsons, six great-grandsons," and a numerous but unknown number of carriers (Rushton, "Royal Maladies" 2).² The disease became so widespread in the family that it became accepted as a hazard that royal parents would have to face in the same way non-royal parents of

² Since some female descendants died before they reproduced, it is uncertain if they were carriers or not. Grand Duchess Maria is thought to be a symptomatic carrier due to a hemorrhage she suffered during a tonsil surgery; a later genotype analysis confirmed that one of the daughters, thought to be either Anastasia or Maria, was a carrier for the gene (Rogaev et al.). Around 30% of carriers show low coagulation factors and subsequently have an increased risk of bleeding, although only 2% have a bleeding diathesis, or a serious complication as the result of being a carrier (Gillham et al. 978). See a complete list of hemophiliacs and carriers descended from Queen Victoria in the appendix of this thesis.

the time had to face potentially fatal childhood illnesses such as smallpox and diphtheria (Massie, “Nicholas and Alexandra” 151). The only difference was that this disease was lifelong and affected primarily potential heirs to the throne, making it all the more concerning for royal parents desperately trying to ensure the continuation of their dynasty. Whether or not Victoria understood that the disease was inherited is unknown, but that hemophilia was passed down through families had been known for decades. In 1840, four rules of inheritance had been identified by the medical community: “1. Only males were subject to the disease; 2. The father of a bleeder was always free from the disease; 3. The son of a bleeder male was never affected; 4. The bleeder normally inherited the ‘diathesis’ from his maternal grandfather” (Rushton, “Royal Maladies” 2). Physicians had been urging that members of “families with the bleeding tendency” should “be advised against marriage” (Rushton, “Royal Maladies” 23; Massie 150). While the frequency of hemophilia troubled the Queen in her later life, she appeared to have no knowledge of the hereditary nature, frustratedly writing: “Our poor family seems persecuted by this awful disease, the worst I know” in 1900 (Rushton, “Royal Maladies” 6). This misunderstanding of hemophilia, combined with the nature of royal marriage market, allowed the disease to permeate throughout the European continent.

Politics of Royal Marriage

As evidenced by Queen Victoria’s desire to marry her children across the European continent, marriage was a common political tool of royal houses. Amongst her descendants were twenty-one reigning monarchs and nineteen consorts (Eilers 60). Victoria ended up being called ‘the Grandmother of Europe’ due to the marriages she arranged for her nine children. She married her children and grandchildren into numerous royal houses, including those of Germany, Russia, and Spain. Prince Albert and Victoria had a “dynastic agenda” and therefore orchestrated

marriages for their progeny the same way their own marriage had been decided as children, carefully weighing political and economic benefits of matches with the intent of spreading English values and forming friendships with other nations (Potts and Potts 40; Rushton, “Royal Maladies” 9). Victoria’s House of Hanover was not the only royal or imperial house to use this tactic; the Austrian Habsburg house, which reigned for six centuries, is famously credited with the Latin slogan “*Bella gerant alii, tu felix Austria nube*,” or “Let others wage war, you, happy Austria, marry,” demonstrating the political import of a good marriage (Schwartz 176). Marriage to others in other royal houses was considered critical to preserve the amount of royal blood in the line of succession, to gain political advantages, or increase status.

The primary criterion to be considered royalty is to be of direct descent from a sovereign and his or her legitimate spouse; children born to kings with mistresses are typically not included in the line of succession except in extraordinarily rare circumstances (Fleming 232). However, being in current possession of territory, or having the primary rule over one’s territory (e.g., not being a part of a larger Empire) was not a requirement; families were still considered royal after having lost their territory or political power. Wealth is also not a factor - many royal families were in debt and commoners with wealth were not automatically considered royal (Fleming 233). The further a relative from the sovereign one was, the lower the royal title ascribed; for example, children and grandchildren of the Russian male line of descent from the Tsar would be “Imperial Highnesses” as grand dukes or grand duchesses, but more distant relations were princes or princesses and only called “Highnesses.” One’s title would increase if they married above their rank; unless one was a prince consort, such as Victoria’s beloved Prince Albert, the spouse would take the titles of their spouse if they were higher than their current titles (Fleming 234). Marrying outside the “golden stockade of royalty” was considered a “mortal sin” and a

recipe for disaster (Aronson 7). Therefore, there was considerable social and familial pressure to marry within one's royal level or upward.

If one decides to marry outside their royal rank, they may risk being excluded from the line of succession. Grand Duke Michael, the brother of Tsar Nicholas II, married his twice-divorced mistress despite being expressly forbidden to do so by his brother. Since his marriage contradicted two imperial house statutes, the requirement of permission from the sovereign to marry established in 1797 and the 1820 addition to the code that all Romanov spouses must belong to a "royal or sovereign family," Nicholas forced him from the line of succession and cut off his allowance (cited in Harris 74). "Relative equality of rank" was an important consideration when deciding upon a match (Fleming 236). One could only marry a commoner or someone of a significantly lower rank if they agreed to a morganatic marriage, where their spouse would not be allowed their title, rank, or privileges and their issue would be excluded from succession. Archduke Franz Ferdinand, heir presumptive to the Habsburg throne, had a morganatic wife, Countess Sophie Chotek. Despite being noble, Sophie was considered an unacceptable match because the Choteks were not a dynastic house. Hence, the pool for marriage was rather limited, making it unsurprising that close relations intermarried and that the dynastic European houses were related to each other by marriage; about a third of marriages between King George I of Britain's ruling descendants were between "close relations" (Fleming 240). In particular, heirs to the throne, reigning sovereigns, and the oldest daughters of monarchs - princesses royal - were held to higher standards than those outside of the direct line of succession. Another dramatic incident in more recent history is the abdication of King Edward VIII of Britain to marry the twice-divorced Wallis Simpson; he had previously been refused permission to marry a

commoner as heir to throne but his brother had been allowed to (Fleming 235). Marriage to one of a similar rank, then, is particularly essential for those who may come to sit on the throne.

Another political implication of royal marriage is the use of marriage to increase a house's status or political power. While wealth, territory, and political power does not affect one's status as possessing royal blood, it does affect one's status in the hierarchy of royal houses. Marriage was a common royal political tool to establish alliances with higher-ranked dynastic houses or to link two powerful houses together. Queen Victoria's eldest daughter, also called Victoria, married into the Prussian house of Hohenzollern, another high-tier royal house in addition to the British and Russian royal houses. Queen Victoria's own husband was from the House of Saxe-Coburg and Gotha, whose members married into many of the leading royal houses of Europe subsequently improving their status; the famous Prussian statesman Otto von Bismarck disdainfully called them "the stud farm of Europe" (quoted in Aronson 82). Their marriages would often raise them up in rank; Albert went from a "serene highness" to a "royal highness" upon his marriage. For royals, marriage alliances were a way in which to establish, repair, or create new relationships with other royal families without the commitment and hostility expressed in a military alliance (Fleming 236; Campbell Orr 12). Wives who would later become queens were often selected for their "dynastic capital" and what political benefits could arise from a match (Campbell Orr 12). Due to the political implications and uses of royal marriages, children of monarchs were often regarded first as potential successors and political pawns rather than children; marriages were not infrequently decided upon prior to the two parties ever meeting or despite their dislike of each other (Fleming 237-8). A story about the Montenegrin king's daughters, called 'the black pearls,' summarizes the attitudes of monarchs toward their children when it came to marriage: "When a foreign visitor once regretted that Montenegro had no

exports, the old King countered with a smiling, ‘Ah, but you forget my daughters’”; his five daughters eventually married two future minor kings, two Russian grand dukes, and a Battenberg prince (Aronson 78-9). Happiness and love in the marriage were secondary or irrelevant concerns when it came to royalty. One scholar describes the history of royal marriages as “largely a story of misery, exile, incompatibility, xenophobia and a clenched-teeth doing of one’s duty” (Allitt 32). In fact, many laws of marriage dictated in royal house family statutes are specifically designed to prevent or actively discourage marriage for personal reasons and emphasize the duty to one’s imperial house (Fleming 238). As described later, however, some royal marriages were in fact contracted because of love and a refusal to marry otherwise, which can have their own set of political consequences.

The issue of royal marriage also brings up the expected royal gender roles. While both sexes were meant to make advantageous marriages, men and women had different concerns. Women had the task of bearing heirs to the throne, the potential future rulers of their respective countries. The greatest pressure on female rulers was the bearing of one or more male children, with some additional daughters; the “heir and a spare” philosophy was highly encouraged to ensure the smooth transition of power and avoid conflict in the case of the untimely demise of an heir apparent (Campbell Orr 6). Queens were expected to “suggest in an idealised form the symbolic harmony of male and female, the potency and fertility of the ruling male, and the continuity of the dynasty” (Campbell Orr 5). Not bearing a son could result in social ostracization or worse. Catherine of Aragon was famously divorced by Henry VIII partially for not bearing an heir and replaced with Anne Boleyn, who was later beheaded after bearing only a living daughter; Empress Elisabeth of Austria-Hungary once found an accusatory pamphlet on her desk after she had had two daughters but had yet to produce a son; Tsarina Alexandra felt like a

personal failure after four successive births of daughters, the Russian court being even more displeased with the succession of imperial daughters (Owens 141; Massie, “Nicholas and Alexandra” 151-2). The pamphlet left on Empress Elisabeth’s desk had underlined text that sums up the expected role of a female consort in European courts:

The natural destiny of a Queen is to give an heir to the throne. If the Queen is so fortunate as to provide the State with a Crown-Prince this should be the end of her ambition – she should by no means meddle with the government of an Empire, the care of which is not a task for women... If the Queen bears no sons, she is merely a foreigner in the State, and a very dangerous foreigner, too. For as she can never hope to be looked on kindly here, and must always expect to be sent back whence she came, so will she always seek to win the King by other than natural means; she will struggle for position and power by intrigue and the sowing of discord, to the mischief of the King, the nation, and the Empire...
(quoted in Owens 141).

Women were often harshly blamed for the failure to produce a son, or if something was perceived to be wrong with the child. Their position at court was often precarious until they had a son and heir. Even if their husbands loved them and their children deeply, such in the case of Nicholas and Alexandra, the pressure from the court and other family members could be cruel and exhausting. Women, especially queen consorts, were typically regarded as having the primary and even sole job of producing lots of royal children to ensure the succession and to marry off to other kingdoms. While women could have political roles, and may even have the opportunity to succeed to the throne themselves in certain circumstances, the arguably most critical role was bearing the king’s children. If they were to assert political roles when it was

considered out of place, or if it threatened other royalty - such as Dowager Empress or Queen - they could risk social repercussions.

Political Climate of Europe: Monarchies in Jeopardy

While the European monarchy still lives on to this day in the form of a constitutional monarchy in a handful of nations, the mid-1800s to the conclusion of World War I in 1918 saw the decline of the monarchical form of government and the transition to constitutional monarchies or more democratic forms of government. Europe was experiencing rapid development, moving out of the countryside and into cities, distancing themselves from the religious leaders and landowners they formerly obeyed, and becoming more politically aware and active (Stone 1). With the change in the structure of Europe, the government structures also had to change.

One of the reasons for this need to change institutions was the revolutions of 1848. Revolutionary movement swept across the continent. France, Italy, Germany, Austria, Bohemia (now the Czech Republic), Hungary, Switzerland, Denmark, Romania, Poland, and Ireland all experienced some degree of revolution (Stearns 1). All of these movements ultimately failed with the exception of the French revolution (“Revolutions of 1848”). However, even in unsuccessful movements, government officials still agreed to make concessions to the revolutionaries, such as granting constitutions or expanding suffrage. While these revolutions failed in ultimately achieving their aims, they laid the groundwork for victories in the future, such as the Compromise of 1867, which established the Dual Monarchy and the Austro-Hungarian Empire, providing the Hungarians with some degree of self-rule (“Austria-Hungary”). Some of key political concepts of the revolutions — nationalism and liberalism, primarily — were “enhanced” by the revolutions and later became more potent political movements, gaining a

lot of ground in the wake of the 1848 revolutions (Stearns 8). These political concepts would prove to be important in the post-World War I collapse of European monarchies.

Liberalism in the nineteenth century was a political concept that advocated for a representative government; limited suffrage wherein only the educated and property holders could vote; protection of freedom of speech, thought, press, and assembly; efficient governments based on meritocracy, not aristocracy; equality under the law; the opportunity for upward progress through education and reason; and the repeal of legal restrictions on economic change (Stearns 46). Liberals championed education, which caused conflict with the church, which ran most of the educational options available. There was also conflict because liberalism challenged the Pope's Infallibility which further upset the Catholic Church.³ Liberals believed in morally responsible individuals and the ability of those individuals to be upwardly mobile, rather than have their future dictated by birth. Liberalism is considered by some to be a source of the prosperity Europe experienced in the later portion of the nineteenth century, as almost all countries in Europe reformed institutions to be more liberal in the 1850s and 60s (Stone 3). A political philosophy of this nature was in direct conflict with the old order of European monarchies, which ran often as autocracies, and what Parliaments or advisors existed were almost exclusively aristocrats holding inherited titles. Liberalism was on the rise, and if monarchies wanted to maintain their thrones, they were going to have to adapt to the changing nature of the political climate. Some monarchies were better equipped or more amenable to these proposed modifications to their powers than others. Many countries did make changes, through the introduction of institutional reforms. Education was increased, trade made easier, central

³ Papal infallibility is a doctrine in the Catholic Church that the Pope cannot be wrong when he is teaching morals or faith, because he is divinely inspired to speak the teachings of Jesus Christ. It is a more modern concept, rarely discussed in medieval times (The Editors of the Encyclopaedia Britannica).

banks established, and tariffs were changed or abolished (Stone 3-4). The structure of the country depended on the composition of the country, however. Liberalism was more successful in the countries with a strong middle class, like Great Britain, rather than countries that were further behind industrially, like Russia (Stone 5).

Nationalism was another political force gaining ground in the 1840s which challenged the social order of monarchies. Nationalism promoted “the national culture, defined primarily in terms of language and historical heritage, and to equate political structure with this culture” (Stearns 47). Essentially, nationalism believed that each national group — for example, the Czechs, the Hungarians, or the Germans — should have their own political structure and nation-state. The “most popular opinion of the time argued that statehood is just the most accurate form of securing the well-being of a particular nation,” and therefore nationalities began to desire increased political autonomy (Kozuchowski). Nationalists felt that their views aligned with liberalism (Stearns 48). Therefore, the two emerging political ideologies both worked to contribute to the political climate that prompted the revolutions, and were perpetuated in the rest of the nineteenth century and into the twentieth with the gains made by the revolutions of this period.

By the 1880s, the aristocracies were in decline, primarily financially. Agriculture was proving to be less lucrative than before, and families could not live off their estates. Many aristocrats married into new, urban money, which was outside the bounds of typical nobility marriages (Stone 7). Despite the trials faced during the mid-to-late nineteenth century, the turn of the century showed relatively strong monarchies across Europe. In 1910, there were more monarchies in Europe than ever before; twenty reigning monarchs populated the thrones of Europe, plus the duchies within the German Empire, with every country except France and

Switzerland being some form of monarchy (Aronson 3). In response to the rise of liberalism across Europe, nearly every monarchy was technically a constitutional monarchy, with all the “trappings of a democratic state: franchise, political parties, elected assemblies and representative governments” (Aronson 19). However, monarchs retained different levels of power over their nations. The Russian Tsar had the most authority, even more so than his fellow autocrats, the German Kaiser Wilhelm II and the Austrian Emperor Franz Joseph (Aronson 47). The King of England, Victoria’s son Edward VII, was on the other extreme, wielding little political power (Aronson 3).

Despite the elimination of a sovereign’s divine right in many societies in favor of constitutions and extended suffrage, royalty still held an element of mysticism that separated the royals from the population. While Russia still had an autocracy and regarded their Tsar as close to God, even the constitutional British monarch was considered “mystical, unassailable, [and] divinely guided” (Aronson 3). The symbolic quality of a monarch was important to retaining their status as separate and above their subjects. Subjects regarded them “like creatures of mythology rather than men” due to the mystery, romance, and perceived higher status shown by the pomp and circumstance and customs that surrounded royal institutions (Aronson 10). The sovereign was the “apex of society,” the top of a social hierarchy that seemed to be unshakable (Aronson 4). They married only within themselves, furthering the concept of their position as a “superior breed” (Aronson 7). While the rise of nationalism in Europe strained the monarchy - especially the multi-ethnic Empires - it also lent credence to the idea of the monarch as the personification of the states, giving a figure to which subjects could ascribe nationalistic fervor (Aronson 9). Due to their status as the personification of the state, their appearance and health was very important. Maintaining an appearance as strong and healthy was important to preserve

the conception that royalty had been chosen from superior stock and given special abilities to guide their respective nations. The diseases that were possessed by members of royal houses were therefore shrouded in mystery (Aronson 10).

Due to the connections she orchestrated through marriage, Queen Victoria had familial relationships with most of the other royal courts in Europe (Van der Kiste xi). Therefore, as previously noted, hemophilia had spread into the families of Europe's political figures. Three cases of hemophilia in the royal families of Europe are most politically pressing: Prince Leopold in Great Britain (born 1853), the sons of the Spanish royal family (born 1907 and 1914), and Tsarevich Alexei in Imperial Russia (born 1904). The reasoning for these particular cases of hemophilia being politically pressing is the state of the European political climate from Queen Victoria's reign until the end of World War I, which brought about the collapse of various monarchies across the continent.

England: Prince Leopold, Duke of Albany (1853-1884)

Prince Leopold was the eighth child of Queen Victoria and Prince Albert, born in Scotland on April 7, 1853. His birth was a medical experiment, as the Queen received chloroform during his birth, one of the first uses of anesthesia in childbirth that subsequently and permanently popularized the use of anesthetics in childbirth (Zeepvat 2). From early on, Leopold suffered from ill health - digestion issues as a baby and generally not filling out the way the doctors anticipated he should, resulting in the disapproval of his mother for being an ugly child (Potts and Potts 41). However, despite his less than ideal health, Leopold's hemophilia was not recorded in early records. There is no indication that he had attacks of bleeding as he learned to crawl and walk; in theory, this could be due to Victorian parenting culture in which babies wore many layers and were often carried, leaving fewer opportunities for Leopold to be injured

(Zeepvat 6). His first known attack of bleeding occurred in the summer of 1855. However, it was misdiagnosed as scarlet fever after his siblings came down with the fever, despite Leopold having not been exposed to the disease. He did not go to the zoo with his siblings, where they were exposed, due to his bleeding accident (Zeepvat 7). As the prince got older, the nursery personnel became increasingly concerned with his frequent bruising and illnesses. It soon became apparent that Leopold had a serious medical condition.

Despite being a member of the royal family and having arguably the best medical treatment he could hope for, Leopold's experience with hemophilia was similar to individuals of other classes which were afflicted by the disease (Rushton, "Royal Maladies" 6). Leopold suffered from frequent bleeding and intense pain, which medical professionals could do little to alleviate. At seventeen, he wrote: "I am so wretched, I lose all faith in God & man, why am I to be thus tortured?...I feel inclined to cry all day long, I am so wretched...I feel that my life is so empty and idiotic; I find no pleasure in living, but only pain" (quoted in Zeepvat 64). He once wrote to his sister: "I am mad with pain, so I must stop. I am in such agonies at this moment" (Potts and Potts 41). During Leopold's life, the only real treatment was morphine, to be used only occasionally, along with bedrest (Zeepvat 64). Therefore, most hemophiliacs simply had to suffer through episodes and hope for the best.

Queen Victoria was not terribly sympathetic to her son in the beginning and was hard on him, as she was with almost all her children. Leopold was left behind when the family would go on vacation to Balmoral in Scotland (Stevens 31). The Queen's attitude toward Leopold gradually changed as the reality of his condition set in. Slowly, she stopped making disparaging comments about his physique and became more concerned about his future. She gradually took away many of Leopold's privileges, as many hemophiliac parents do in an attempt to protect

their children — he was forbidden from riding horses, for example (Zeepvat 39). While Victoria recognized Leopold's great intelligence and love of learning, she deemed that he was unfit for any active service, which was expected of princes of the time (Zeepvat 19). She came to regard him as a potential new Prince Albert, who had tragically died on December 14, 1861. She wrote to one of Leopold's educators, explaining that she thought Leopold "may go on with His [Prince Albert's] work" (Zeepvat 38). Ironically, given this belief, Victoria was reluctant to allow Leopold to play a role in political affairs in his youth, making it difficult for him to follow in his father's footsteps the way she claimed to want. A proposal that he be named the heir to the duchy of Saxe-Coburg was squashed because he was too sickly. She decided that Leopold was "of far greater use in England" than his other brothers, and therefore she ensured that he would stay home with her (Zeepvat 42). While this initially seems as though she would put his talents to use in England rather than abroad, Victoria was likely thinking more toward companionship for herself, as she hated being alone - she thought that Leopold was not fit for a titled position in the military or the government due to his ill health (Rushton, "Royal Maladies" 4).

While Leopold's health was known to be poor, the nature of it was not known to the Queen and the family due to a lack of medical knowledge around the disease, coupled with selective withholding of information from royal doctors. What the Queen knew about hemophilia is a subject of debate amongst historians. While she understood that Leopold's condition was "often not outgrown" and there was no remedy or treatment options to fix the problem, she believed the issue was to do with the "constitution of the blood vessels" (Zeepvat 19-20). The royal doctors, in addition to perhaps not fully understanding the nature of hemophilia and inheritance themselves, may not have wanted to provide information to the Queen that was either too distressing or put her in a complicated spot. If the Queen had known of the risk of

hemophilia when marrying her children into the other royal houses of Europe and publically acknowledged that their future heirs might now have a life-threatening medical condition, that would have prevented her children from marrying those on their own level, in addition to creating political tension with those to whom her children were already married. There was a risk that the English royal house could become “social pariahs” in Europe as no one would want to marry into the family, putting their throne in jeopardy (Rushton, “Royal Maladies” 24-5).

While the nature of Leopold’s condition was not entirely known due to the science at the time, the public was still aware of his condition. An attack in 1869 was severe enough that it ended up in the newspapers (Zeepvat 61). It was not the first time that the prince’s illnesses had made the newspapers - his previous bleeding attacks had also been covered, but the fact that he had a chronic illness was not disclosed. The newspapers portrayed him as a healthy young man with inexplicable bleeding on occasion (Rushton, “Leopold” 463). However, 1869 was the first year in which the chronic illness aspect of his health was revealed in public with an article by an anonymous source stating: “As is well-known, the Prince has a tendency to bleeding from mucous membranes, characteristic of the hemorrhagic diathesis” in the British Medical Journal (cited in Rushton, “Leopold” 463). Reports of his ill health continued over the rest of his lifetime; Leopold hated these reports and considered them an invasion of his privacy (Rushton, “Leopold” 478). In general, the nature of his illness was not kept under wraps. The public was aware of his illness, allowing the Queen to gain a sympathy from the public that was not an option for the Spanish and Russian royal family, as demonstrated later. Information about hemophilia was spread into the medical community by doctors who attended to the prince, and his case was compared to other families with hereditary hemophilia (Rushton, “Leopold” 467). Despite the public knowledge about the disease, official news about the royal family was

still carefully controlled by the Crown, as it still is today (Rushton, “Leopold” 471). Health matters were particularly tightly controlled, especially when illnesses were severe, as to not scare the public. This occasionally backfired on the throne, as when the nation was shocked by Prince Albert’s death because his illness was not reported as anything concerning (Rushton, “Leopold” 473). Further reports were often more detailed. The reporting of royal health conditions often had the ability to sway the public toward sympathy for the royal family during periods of public absence, and the nation often supported the family during periods of illness. In the case of Leopold, public sympathy was expressed whenever one of his attacks of hemophilia was reported; the public was more understanding of changes in the duties of the family if one was ill, relating to the stress that having an ill close family members can cause (Rushton, “Leopold” 479).

How Leopold’s illness affected politics is likely a case where hemophilia interfered with the political life of the royal family in the smallest sense. Due to his illness, the Queen had to postpone her address to Parliament in 1869 after a severe attack, and the family was also unable to move to Windsor on time that same year (Rushton, “Leopold” 463-4). She was prevented from opening Parliament in 1875 due to a severe hemophiliac attack, when Leopold was again on death’s doorstep. In 1877, the Queen’s travel to Balmoral was delayed due to another hemorrhage (cited in Rushton, “Leopold” 466). Republican sentiment was on the rise in England in the early 1870s, and springing partially from the Queen’s retreat from the public eye following the death of Albert. Republican politician Charles Bradlaugh was quoted in *The National Reformer* as saying, “the experience of the last nine or ten years proved that the country can do quite well without a monarch, and may therefore save the extra expense of monarchy” (quoted in Gossman 51). Cancelling of public appearances, therefore, would have not helped the political

situation of Queen Victoria when the public was resentful of her lack of appearances; in fact, cancelling them could have made her position more precarious, even though the republican movement at this point was relatively short lived.

Leopold's illness could also have affected politics through his work on behalf of his mother. The Queen believed Leopold unfit for military service and therefore decided in 1870, upon his sister Louise's engagement, that he would replace Louise as the Queen's personal secretary (Zeepvat 67). His education was an issue, however. While he was incredibly intelligent and had excelled in certain subjects, there were distinct gaps in the prince's education, which is the case with many people with chronic illnesses. Due to his frequent illnesses and the constant changing of tutors in his household, he had excelled in his favorite subjects as he studied them without prompting but did not have a wide breadth of education, which greatly embarrassed him (Zeepvat 76). After much struggle with the Queen, who thought him too delicate and wanted to keep him home with her, he was allowed to attend Oxford University, but his education remain interrupted by his illness and the Queen's need for him to return home at her pleasure (Zeepvat 83). Following his education at Oxford, Prime Minister Gladstone recognized that Leopold was suited to play a political role (Zeepvat 89). In 1877, Leopold became one of the Queen's private secretaries (Potts and Potts 47). He took on what he described as "a great deal" for the Queen and was granted a Cabinet key that allowed him to see state papers. He corresponded with sovereigns and wrote letters on the Queen's behalf, in addition to dealing with foreign policy; he also advised and discussed issues dealing with Turkey, Russia, and Egypt with the Queen. At times, he believed that he was being asked to perform tasks that he was not qualified for, but he grew more confident in his role as time went on (Zeepvat 128-9; 131). In contrast, the heir to the throne, the Prince of Wales, was not allowed to see any state papers until the Queen died (Potts

and Potts 47). Despite being severely ill in the fall of 1877 and falling into a deep depression, Leopold continued to handle state papers (Zeepvat 134). He was in severe pain during this period of illness, which presumably made it difficult to work. While no known grave political consequence arose from his work during this period, it may raise some concern that he handled some foreign policy work while gravely ill. His illness also prevented him from travelling and completely official duties on behalf of his mother; the Queen asserted that “she cannot bring herself to consent to send her very delicate Son, who has been 4 or 5 times at death’s door...to a great distance....even if he did not suffer, the terrible anxiety which the Queen would undergo...would unfit her for her duties at home and might undermine her health” (quoted in Zeepvat 144). Therefore, Leopold’s illness may not have had foreign political consequence, but caused distress to his mother, a woman with much more political power than himself.

On May 24, 1881, Leopold was granted a peerage in the House of Lords, the upper house of Parliament, as the Duke of Albany, a title he had been requesting from the Queen for years (Zeepvat 162). Six months later, on November 17, he got engaged to Princess Helena of Waldeck and Pyrmont, another move toward independence from his mother. His search for a bride was long and difficult; his hemophilia and epilepsy made it difficult for him to find a wife of similar rank. He was overjoyed when Helena finally accepted his proposal (Zeepvat 167). They were married on April 27, 1882 at Windsor. The marriage was unfortunately short-lived. While on a trip to Cannes, France on doctor’s orders, Leopold slipped and hit his knee on the stairs on March 24, 1884 (Zeepvat 186-7). This naturally triggered an attack of hemophilia; the prince was in intense pain and had to be bedridden yet again. However, the prince ultimately died of bleeding on the brain, likely from bursting a blood vessel when he fell (Potts and Potts 52-3; Zeepvat 188). The death certificates from Cannes and London list no official cause of

death, but one can infer generalities about the nature of his death due to his medical conditions (Zeepvat 188). Leopold had two children with Helena: one daughter, Alice, who genetically must be a hemophilia carrier as the daughter of an affected male, and a son, Charles Edward, born after Leopold's death. His son could not have hemophilia due to his mother not being a carrier herself, but his daughter Alice married Prince Alexander of Teck and had at least one son with hemophilia; her other son died in infancy and his specific cause of the death is not known. There is a chance that that son had hemophilia as well.

Some rumors have been perpetuated that Leopold had significant political influence. However, it is likely that Leopold had little influence on the Queen, given their relationship; it's also likely that he did not handle much of political significance, as the Prince of Wales seemingly had no problem with Leopold being the only brother with access to state papers (Zeepvat 154). The rumors about Leopold's influence have been chalked up to mainly court gossip by sources who would not have been informed on such matters. Additionally, his membership in the House of Lords held little actual political significance as the House of Lords cannot prevent bills passed by the House of Commons from becoming law. His hemophilia may have influenced politics in the sense that he was close to the Queen and his ill health was distressing to the sovereign. Given that Britain was a constitutional monarchy already, the Queen had little real political power - not nearly the same amount as her family members on the continent. Hence, Leopold's hemophilia likely affected the public perception of the family, be it by increasing sympathy or by preventing the Queen from attending to public duties. Given that public opinion about the Queen was worse when she was avoiding public appearances, Leopold's health may have decreased the popularity of the sovereign at times. Being far down

the line of succession, his ill health did not jeopardize the dynasty, so the political ramifications of Leopold's hemophilia were relatively minor in the grand scheme of things.

Spain: The Heirs to the Throne

King Alfonso XIII assumed the Spanish throne upon his birth on May 17, 1886. As his father's only heir and born after his father's death, Alfonso immediately assumed the throne but his mother operated as his regent until he reached the age of majority. In his youth, the King suffered from occasional bouts of ill health, which would later influence his views on the health of his sons (Petrie 48; Rushton, "Royal Maladies" 17). He formally assumed full power in 1902 on his sixteenth birthday and began looking for a wife a few years afterward. The young king partially set his sights on England, where Queen Victoria's son Edward VII now ruled following her death in 1901. When Alfonso visited England in 1905, King Edward had his young female relations present at court in the hopes of securing an English queen for Spain (Gelardi 113). While Alfonso was only nineteen during his visit, the pressure was high from the Spanish court for him to marry; a king without an heir was considered risky (Gelardi 123). Alfonso was drawn to Victoria Eugenie of Battenberg, called Ena, Princess Beatrice's daughter and the granddaughter of Queen Victoria.

When discussing a potential marriage, Edward VII was direct with Alfonso: marrying Victoria Eugenie came with the risk of inheriting hemophilia (Rushton, "Royal Maladies" 25). Her parents were Queen Victoria's daughter Princess Beatrice and Prince Henry of Battenberg; two of their three sons had had hemophilia, confirming that Princess Beatrice was a carrier and making Ena a potential carrier (Halbrich 265). Whereas the discussion of hemophilia and its inheritance within the family was taboo during Victoria's life, her son was less concerned about avoiding the subject (Noel 55). Some sources maintain that Alfonso was never told of the

potential for hemophilia to pass on, but many say this is unlikely; the main source of evidence for this position is Alfonso's anger at his mother-in-law following the birth of his first son for not informing him of the potential for the disease (Noel 57). Others state that Alfonso was "fully warned" by the king, his ministers, and even Princess Ena herself, but either did not understand the risk or disregarded it as inconsequential (Noel 55-57). Alfonso's own family also attempted to discuss the topic with him while he was considering marriage to Ena; he brushed his aunt's comments off as her trying to make trouble and ignored advice to avoid the marriage (Noel 58; 138). His advisors started a "whispering campaign" about the risk of hemophilia to dissuade the king, but he continued to ignore the potential for the disease (Gelardi 125). The king, in his nature, loved danger and taking risks; likely, he regarded the risk of hemophilia as no different than driving fast or exposing himself to a large crowd in public (Noel 58). The couple married on May 31, 1906, their wedding day marred with a deadly terrorist attack from the crowd - an ominous omen for the future tragedies in their married life.

Despite Alfonso's flippant attitude in his youth, once hemophilia presented itself in his sons, the situation quickly changed. Their first son, Alfonso, Prince of Asturias, was born on May 10, 1907. It was soon apparent that hemophilia had manifested in the heir to the throne; he did not stop bleeding after circumcision was performed (Ojeda-Thies and Rodriguez-Merchan 154). Initially, the sickness of the heir did not affect Alfonso and Ena's relationship; their second son, Jamie, was born strong and healthy and showed no signs of hemophilia. However, tragedy struck the Spanish royals again when Jamie became deaf and largely mute after an infection of the bones of the ear required a surgery that went poorly, breaking his auditory bones (Rushton, "Royal Maladies" 20; Gelardi 171). Over the next five years, Ena gave birth to four more children: two healthy daughters, a stillborn son, and a healthy son with no signs of hemophilia.

However, their seventh and final child, Gonzalo, was born in 1914 and was also afflicted by hemophilia. Despite having one healthy son, Juan Carlos, Alfonso was upset by the presence of the disease in his children and took it out on his wife. He wrote: “I cannot resign myself to the fact that my heir has contracted an infirmity which was carried by my wife’s family and not mine. I know that I am unjust. I recognize it; but I cannot think in any other way” (Noel 139).

Alfonso’s sentiments echo a pattern of women being blamed for the passage of genetic disorders onto their children. In families with children diagnosed with genetic conditions, it is not uncommon for a parent to place blame on the other parent; specifically, X-linked inheritance often leads to blame placed on the mother (James et al. 234). Mothers also tend to feel significant guilt and blame themselves if they know the disorder is X-linked (James et al. 238).

Additionally, fathers of children with children with X-linked disorders are more likely to admit that they blamed their partner at some point; carrier mothers also are more likely to feel blamed by their child’s father (James et al. 239). Placing the blame on the mother allows the father to disassociate himself from any social shame brought on by having an ill child. Typically, men externalize their emotional response while women internalize them, leading to more blame of mothers by fathers and more guilt by carrier mothers. The placing of blame on the mother tends to greatly disrupt family dynamics if left unresolved, harming not only parental relationships but the relationship between father and child. Historically, poorly understood disorders have been attributed to poor maternal care, leading to a long-standing association that mothers are to blame for any health issues their children may face (James et al. 240). Therefore, Alfonso’s response to the diagnosis of an X-linked disorder is not an uncommon response, even when compared to modern times. While Alfonso, Ena, and other members of the royal family would not have known about the exact genetic inheritance mechanisms of hemophilia at the time, Ena was

susceptible to blame due to the association between health and mothers and the knowledge that the disease came from her side of the family.

The relationship between Alfonso and Ena subsequently deteriorated under the anger from Alfonso of not having a healthy male heir until his fifth child, which also caused political problems for him under Spanish law. Spanish law dictated that a prince may not assume the throne if he had any physical ailments (Rushton, "Royal Maladies" 20). Due to this law and other reasons, the Spanish royal family decided to keep the nature of the illness of the Prince of Asturias carefully concealed. While Alfonso was often bedridden and suffering bleeding attacks, the media and the people were only informed that he had a medical condition that the King believed would heal in time (Ojeda-Thies and Rodriguez-Merchan 155). The family made deliberate attempts to maintain the image that the prince was healthy for no less than fifteen years (Noel 138). However, information is often leaked no matter how tightly it is held onto. Information leaked out of the palace frequently about the nature of the heir's condition, "often in the form of misleading half-truths" (Noel 143). One rumor was that a soldier was sacrificed daily to provide blood for the princes, which was widely believed by the Spanish peasantry (Stevens 30; Aronson 10). While the public spread these bits of inaccurate or exaggerated information like wildfire, those in the palace remained unaware of the happenings outside the palace walls in relation to gossip and unaware that occurrences within the palace walls inevitably got out. As they did not know the true nature of discussion amongst the average citizen, they did not understand that the gossip was just as detrimental to the royal house as being honest about Alfonso's hemophilia would have been.

The intense gossip surrounding the state of the heirs led to anti-British sentiment throughout Spain aimed primarily at Queen Ena. Since the ailment was known to transmit from

the British royal family, some began to resent the British and the Queen for being “genetically defective” (Sherman 13). Ironically, Ena had actually been brought into the bloodline in the hopes of adding strong, revitalizing blood into the dynasty, securing its future (Jobling 1). Her husband Alfonso was not particularly healthy himself - he would die of a heart attack at age 54 in 1941 - and had been motivated to produce healthy heirs due to his own personal health concerns (Rushton, “Royal Maladies” 17). However, the Spanish government felt they could not release that the King had been duly warned, and therefore the sentiments against the Queen and the British government were left unchecked and unencumbered (Petrie 98). This is the exact type of repercussion that doctors may have been concerned about when explaining the nature of the disease to Queen Victoria decades earlier.

While the Spanish royal family was able to hold onto their throne during World War I even while many others failed to do so, the monarchy was still greatly weakened post-war (Sherman 14). While Spain had remained neutral, the warring of opinions between neutrality and intervention was damaging to the political system (Romero Salvado 30). Wartime pressures meant shortages and unemployment for the lower classes, while business owners able to export products to both of the warring sides turned a hefty profit (Romero Salvado 31). Despite officially holding onto the throne, the monarchy did not survive much longer after the First World War. Spain became a dictatorship under General Miguel Primo de Rivera in 1923, supported by Alfonso as a constitutional monarch. This regime lasted until 1930, when popular support crumbled and the Second Republic was established, forcing Alfonso and his family into exile. Alfonso and Jaime renounced their claims to the throne in the early 1930s, and Gonzalo, the other afflicted son, died in the same period of time. Some monarchists wanted to reinstate the monarchy, but they did not have as strong of a cause. Since two potential heirs to the throne had

hemophilia and another was disabled, they only had one heir to rally behind, which weakened their position (Sherman 14-5). While the hemophilia of the heirs certainly did not cause the Spanish Civil War and the failure of the monarchy to adapt to changing political tides, the inner turmoil and resent against the monarchy did not help the political situation within Spain in any regard.

Russia: The Tsarevich Alexei (1904-1918)

Quite possibly the most famous case of hemophilia is that of the Tsarevich Alexei of Russia.⁴ Due to the brutal murder of the entire Romanov family in 1918 during the Russian Civil War, the last Romanovs, Alexei's hemophilia, and Rasputin's influence on the family have permeated into popular knowledge more so than the other cases of royal hemophilia. The story of the life of the last ruling Romanov family was arguably the most tragic and dramatic story of any afflicted by the royal disease.

Alexei's mother Alexandra was born Alix of Hesse in 1872 and was a granddaughter of Queen Victoria, who had taken a great interest in Alexandra during her youth.⁵ Princess Alice, Alexandra's mother, was married to Grand Duke Louis of Hesse. Alice is known to have been a carrier of hemophilia, having had a hemophiliac son, called Frittie, who tragically died from internal bleeding after falling twenty feet out a window at the age of two (Rappaport 13). This gave Alexandra a chance of being a carrier, of which she was apparently aware. After being

⁴ Various anglicized spellings exist for the Russian name "Алексе́й," including Alexis, Aleksey, Alexey, and Alexei. In this paper, I will use Alexei. Additionally, the title of "Tsarevich" is commonly used in English sources, while the technical proper title for the heir apparent to the Russian throne is "Tsesarevich;" as the terms are considered interchangeable in English and "Tsarevich" is more commonly used, I will use "Tsarevich" for consistency's sake. Alexei was called a Tsarevich despite also being the heir apparent.

⁵ Alexandra is often referred to in texts as Alix or Alicky, her birth name and nickname. Sunny is another affectionate term often used in family letters that originates from her childhood. She adopted the name Alexandra Feodorovna upon her conversion to Russian Orthodoxy in 1894, following the death of her future father-in-law Alexander III.

deeply in love for many years but unsure of converting to Russian Orthodoxy, she finally accepted the proposal of then-Tsarevich Nicholas of Russia. Upon accepting his proposal, Alexandra refused to worry herself about “about the disease Frittie had” and “all those things horrid things which were said about cousins marrying” (Rappaport 18).⁶ These thoughts imply that the future Empress had at least some idea that hemophilia could occur in her future children and a vague understanding of genetics. As the wife of the heir to the Russian throne, it was absolutely necessary that Alexandra be in sound health; “It is a sine qua non that the wife of the heir to the throne of Russia should be of a thoroughly sound constitution, and his marriage to anyone not in good health is positively prohibited by the Romanoff family statutes” wrote the Westminster Budget (quoted in Rappaport 20). As with the Spanish case discussed previously, women were likely to be blamed for any potential health issues in the future heirs; Ena and Alexandra were roughly contemporaries. As with any wife of a future ruler, her primary job was to produce an heir to the throne who was in good health. Alexandra herself suffered from ill health, however, and was already experiencing the intense pain in her sciatica which would stay with her for the rest of her life, frequently impairing her mobility. Rumors about her ill health had been circulating in the international press, prompting a statement from the British royal family on their falseness in 1894, the year Alexandra and Nicholas finally became engaged (Rappaport 19). Her personal sickliness was another concern about the potential marriage between the two young royals.

Nicholas’s parents, the Tsar Alexander III and Tsarina Maria Feodorovna, had been opposed to the match from the beginning of Nicholas’s attempts to marry Alix. Some speculate

⁶ Nicholas and Alexandra were cousins through two family lines. They shared a great-grandmother, Princess Wilhelmina of Baden, making them second cousins. Their other common ancestor was King Frederick William II of Prussia, who was Alix’s great-great-grandfather and Nicholas’s great-great-great-grandfather, making them third cousins as well.

that the potential presence of hemophilia and fear for the health of the future heir was one of his rationales for initially opposing his son's marriage to Alexandra (Rushton, "Royal Maladies" 12). In Russia, hemophilia was known as *bolezнь gessenskikh* - 'the Hesse disease' or the 'Curse of the Coburgs,' making Alix of Hesse a less-than-ideal candidate for marriage into the imperial house due to her German blood (Rappaport 81).⁷ However, others state that no one in St. Petersburg considered the possibility of hemophilia; while Alexander III, Maria, and Nicholas were likely aware of the disease, Nicholas recorded no concerns on the matter in any of his extensive letters or diaries (Potts and Potts 94; Massie, "Nicholas and Alexandra" 150). It is unknown if court doctors said anything about the disease to the imperial family. If a distinguished doctor outside of court circles had wanted to voice any concerns, it is unlikely that he could have done so due to a divorce of "royalty from reality" as a result of their isolation from the general population (Massie, "Nicholas and Alexandra" 151). The question was also complicated due to the "random nature of the disease" since not every male offspring would be affected; additionally, Alix's sister Ella was married to a Russian Grand Duke but had no children, so the Russian royals had no personal experience with the disease. It is likely that the Tsar and his wife knew nothing of the genetic risks (Lieven 49-50). More likely, the difference in rank and her nationality were their main concerns; Alix was a minor German princess while Nicholas was the heir to the throne of the Russian Empire. Furthermore, the Romanovs were anti-German at the time of the match and would have preferred that Nicholas marry a French princess, Helene of Orleans, to strengthen the Franco-Russian alliance; this was unlikely to occur regardless of whether Nicholas had taken an interest in Helene due to their religious differences

⁷ These names ascribe the blame for the disease on Prince Albert's genetics rather than Queen Victoria's, which has since been disproven.

(Gelardi 43; Fleming 239).⁸ Nicholas, however, had his heart set on marrying Alix of Hesse and would accept no other outcome, vowing that if he did not marry Alix, then he simply would not marry anyone at all (Gelardi 43).

Despite the misgivings of Nicholas's family, Nicholas and Alexandra became engaged in 1894. They were married on November 26, 1894, less than a month after the death of Alexander III.⁹ Many of the Russian people believed Alexandra's arrival in Russia and marriage so soon after the death of Alexander III was a bad omen; some uttered "she has come to us behind a coffin. She brings misfortune with her" (quoted in Gilliard 48). After this rocky start to her life in Russia, things did not improve for the Tsarina. Charged with bearing an heir to the throne, the Tsarina instead bore four daughters in succession: Olga (born 1895), Tatiana (born 1897), Maria (born 1899), and Anastasia (born 1901). While the family of six was quite close and the Tsarina and Tsar adored their daughters, Alexandra was under intense pressure from the Court and the Russian people to bear an heir. The Russian people began to conclude in 1901 that she had displeased God, and therefore she was cursed to have only daughters, who could not succeed to the throne under the laws of succession created by Tsar Paul I (Rappaport 63; Harris 63-4).¹⁰ The imperial couple's struggle for a son led to their first venture into faith healing, with an

⁸ Tsarina Maria Feodorovna had been born a Danish princess, Princess Marie Sophie Frederikke Dagmar, and resented previous Prussian attempts to take over her father's German duchies. Alexander III was a Slavophile and greatly disliked the German Kaiser Wilhelm II, another grandchild of Queen Victoria like Alix of Hesse. Both harbored strong anti-German sentiments, while the Kaiser strongly encouraged the marriage in order to improve Russo-German relations (Gelardi 41-3).

⁹ Dates used in this section are the New Style dates, even though Russia was still using Old Style dates during this time period. New Style dates match the Gregorian calendar and Old Style dates match the Julian Calendar. The Julian calendar was in use in Russia until 1918. As most of continental Europe was already on the Gregorian calendar, using the Gregorian dates allows for a more simplified timeline.

¹⁰ The Pauline laws assert male primogeniture; women can only succeed to the throne when all male dynasts are deceased. It is suspected that Paul I created them partly out of hatred for his mother, Catherine the Great, who took the throne from her husband in a coup d'état in 1762.

unlicensed French ‘doctor’ versed in mysticism. Nizier Anthelme Philippe was introduced to the Tsar and Tsarina by Grand Duke Peter and his wife Militza, both of whom were fascinated by the occult and would later introduce Gregory Rasputin to Nicholas and Alexandra (Rappaport 64). They believed he could help them have a son and were desperate to try anything. Rumors spread throughout the people about the occult happenings between Philippe and the Imperial family, and how he was influencing the Tsar through hypnosis (Rappaport 67). Although Phillippe was soon asked to leave Russia, Nicholas and Alexandra maintained their interest in the mystic. The following year, it was apparent by March of 1904 that Alexandra was pregnant with their fifth child.

Finally, on July 30, 1904, Alexandra gave birth to what appeared to be a healthy baby boy - the Tsarevich Alexei.¹¹ Soon after the birth of this long-awaited heir, the court doctors became concerned over the amount of blood splatters found in Alexei’s swaddling clothes. While initially the Tsar seemed undisturbed by this development, Grand Duchess Militza immediately told him to ask the doctors about signs of hemophilia, shocking the Tsar (Rappaport 79-80). Alexandra and Nicholas were devastated when it became apparent their son had inherited hemophilia. Alexandra wept and said: “if only you knew how fervently I have prayed for God to protect my son from our inherited curse” (quoted in Rappaport 80). Alexandra’s own health began to permanently decline over her intense anxiety over the fate of her only son, rendering her less and less capable of performing court duties and often confining her to bed (Gelardi 121). The Imperial family knew that medical science could do little for the young Tsarevich beyond bedrest and wrapping wounds in hopes of the bleeding stopping; they were also aware of the permanent and incurable nature of the disease. After a decade of waiting, the heir to the throne

¹¹ The name Alexei was chosen after Nicholas’s favorite tsar, Alexei I (1629-1676), a pious and traditional monarch that he hoped his son would be like (Rappaport 75). He was the father of Peter the Great.

had finally arrived, but over his birth hung the constant worry of his untimely death from the slightest accident.

Upon the realization of Alexei's condition, Nicholas and Alexandra took immediate steps to prevent the spread of information about his hemophilia. They regarded this as a necessary step to maintaining the Romanov dynasty. In the Russian religious and superstitious tradition, any defects were viewed as a punishment from God (Sherman 11). This was not an uncommon belief. Across European history, physical health and "cleanness" have been connected to the behavior of the individual and their moral standing; having poor physical health or not being perceived as physically perfect equates to moral corruption (Tarlow 70). While the concept of divine right was recognized in many European monarchies, the degree of this varied on the country. In England, Queen Victoria had been a "Defender of the Faith" and the constitutional head of the Church of England, while the Russian Tsar was literally a priest, head of both church and state. He was regarded as so close to God that at Russian coronations, the Tsar would crown himself, as no one else was worthy. It was also considered highly disrespectful to depict the Tsar on coins or commemorative medals until the Romanov dynasty's tercentenary in 1913 due to his near godly status (Potts and Potts 87; Rappaport 185). The Tsar's brother-in-law and close advisor Grand Duke Alexander Mikhailovich confirmed this, writing: "Although it was no one's fault, the Russian people regarded any defect as divine judgement for some sin. So the affliction of the future Tsar and supreme priest was concealed from all except the immediate family. It was understood that the child was frail but some trouble was obvious. The emperor aged ten years overnight" (quoted in Potts and Potts 97). To the Russian peasantry, the Imperial family were "divine beings" and therefore must be flawless (Rappaport 237). Their social status as near gods

made Alexei's illness all the more trying and difficult to reconcile to themselves within even the Imperial family.

While it was common for the health of the Imperial family to not be discussed, there was a new intensity of this tradition when it came to the Tsarevich. Doctors, servants, tutors, and close friends were all unaware or sworn to secrecy about the boy's health (Massie, "Nicholas and Alexandra" 162). The boy's tutor, Pierre Gilliard, was not aware of the nature of the boy's condition until he had been working with the family for eight years; the Tsarina's closest friend, Anna Vyubova, was only told after witnessing Alexei getting bruised severely after a relatively minor incident and seeing the Tsarina's panicked reaction (Gelardi 121-2). Alexandra told her lady-in-waiting Iza Buxhoeveden that it was "not *comme il faut* for our family to be known to be ill" and the public would only be notified if someone was actually dying (Rappaport 145). Both the Tsar and Tsarina were consumed with fear about Alexei's fate and the fate of the dynasty if the public were made aware of his condition: "Alexis, his parents reasoned, was heir to the throne of the world's largest and most absolute autocracy. What would be in the fate of the boy, the dynasty, and the nation if the Russian people knew that their future Tsar was an invalid living under the constant shadow of death?" (Massie, "Nicholas and Alexandra" 162). Their desire to protect the autocracy, the dynasty, and their beloved children further fueled one of many poor political choices: the decision as a family to retreat from court and public life.

Nicholas and Alexandra had never particularly enjoyed court life, both preferring a quiet family life away from the pressures of Court. The Tsar was "well-intentioned but weak, immature and politically inexperienced," making him "ill-prepared to reign over tubercular Russia," an issue that was only made worse when his only son was struck with hemophilia and the Tsar further removed himself from the court and advisors (Eilers 56). "Nicky's" character

was more of a “country squire,” a role that would have suited him and he would have enjoyed much more than being an autocrat (Gelardi 100). Alexandra was a nervous, quiet, and introverted woman who was also not prepared to rule; as early as the late 1890s, Queen Victoria was expressing concern about the isolation of “Alix and Nicky” (Rappaport 47). The couple greatly retreated from the public as Alexandra’s own health spiraled down and her daily life became consumed with worry over Alexei. Since the public did not know the internal struggle of the Romanov family, there was little public sympathy (Massie, “Nicholas and Alexandra” 162). Their withdrawal even further from the public deepened the sentiments against the royal couple as aloof and disdainful of the public (Eilers 56). These sentiments were particularly directed at Alexandra, whom the Russian people largely believed had a distaste for their country (Massie, “Nicholas and Alexandra” 163). In truth, Alexandra had a deep love for Russia and Russian Orthodoxy, but as a timid, unhealthy woman who disliked court, she felt strongly that her beloved Nicky and their family should retreat from society as much as possible (Gelardi 101). Similar to her grandmother Queen Victoria’s decision to isolate herself from the public when tragedy struck her in the form of the death of her adored Prince Albert, Alexandra removed herself from the public role.

By 1908, other family members were very concerned: they were “shut away from the rest of the world,” noted Crown Princess Marie of Romania, “...their exclusiveness was little conducive towards that fine, loyal unity which had always been traditional in the Russian Imperial Family during the two former reigns and which had constituted its great power...[they are] too self-centered, too exclusively interested in their own children,” neglecting and alienating their European relatives as a consequence (quoted in Rappaport 117). Rumors spread throughout the royal families of Europe and the Empire about the health of the Tsarevich, since the extended

family was not privy to the exact nature of the boy's illness (Rappaport 118). Alexei's hemophilia affected relationships with other royal families, especially as their four daughters approached young adulthood. When meeting with the Romanian royals, whose son Carol was a potential match for either Olga or Tatiana, the Duchess of Saxe-Coburg was writing to Crown Princess Marie of Romania: "What can I find about inheriting that sad illness? We all know that it can be propagated, but the children can also escape. I can only quote Uncle Leopold's two children who never had it but Alice's boys inherited it," eventually concluding that there was always a risk of the disease appearing within the family (Rappaport 213-4). Even during the visit of the Romanian royal family, the Russian Imperial family was so focused internally that the Russian and Romanian cousins barely interacted, as the four grand duchesses were focused on entertaining Alexei instead. The Romanian royals were also constantly aware of Alexei's ailment due to "the presence of Alexey's shadow Derevenko [which] reminded everyone 'of the horrible truth about this child'" (Rappaport 219). Unsurprisingly, the Romanian match fell through. The fact that the Romanian royal family - a relatively minor royal kingship, especially in comparison to the Romanov dynasty - was asking about hemophilia can lead one to speculate if other, more prominent royal houses were also concerned about the disease when considering the Romanov daughters for marriage candidates (Rappaport 214). The extent that hemophilia affected the Romanov's daughters' marriage prospects are uncertain given that the family's retreat from European society also greatly influenced the daughters' perception of the world and their desire to not leave Russia, as well as other families' view of the Romanov clan.

The Imperial family's retreat from public life only continued to fuel rumors throughout the Empire and across the world. Newspapers, with little information to go on, reported various afflictions of that Alexei could have, without confirming almost any facts (Rappaport 182-3).

The New York Times released a story revealing his hemophilia in 1912 without any confirmation from official sources (Rappaport 183). The secrecy surrounding his disease also means that few records of his hemophilic attacks exist (Rappaport 118). The intensely religious Nicholas and Alexandra knew that nothing could be done for their son's illness by the medical community, and their praying had as of yet not changed Alexei's condition. They feared for their dynasty and his future. Therefore, when they were introduced to someone they believed to be a man of God sent to save the future Tsar of Russia, they were overjoyed.

Rasputin's relationship with the Imperial family and his influence on Russian politics is surrounded by lore, rumors, and uncertainty to this day. Grand Duchess Militza once again brought this supposed holy man into the lives of the Imperial family in late 1905. It would be just another year or two until Rasputin would enjoy a casual familiarity with the Imperial family, coming to visit the children right before they would go to bed, seeing the Imperial family in private settings reserved for only a handful of people (Massie, "Nicholas and Alexandra" 198-9). Alexandra was thoroughly convinced that Gregory Rasputin alone could save her son after conventional medicine had failed. Nicholas and Alexandra placed their unwavering trust in Rasputin because they truly believed him "not just a healer but a man of God, sent to help them when no one else could" (Rappaport 113). Rasputin was able to stop the boy's bleeding when no one else seemed to be able to. In 1908, Alexei fell ill for three months after hitting his forehead, the swelling so extreme that he could scarcely open his eyes. Rasputin was not summoned to the Tsarevich's bedside as he was in Siberia being investigated by the Church. However, he sent Alexandra a telegram that he would say a special prayer for Alexei at 8 o'clock that evening; the Tsarevich's temperature immediately began to fall. This was not the only time Rasputin allegedly 'saved' the boy from afar. When Alexei nearly died multiple times during a long

hemorrhage at Spala, the Imperial family had even been compelled to put out a bulletin that the Tsarevich was gravely ill and may die. Alexei was given the last rites. In an act of desperation, Alexandra sent a telegram that night to Rasputin in Siberia, who immediately replied: "God has seen your tears and heard your prayers. Do not grieve. The Little One will not die. Do not allow the doctors to bother him too much." The following morning, the bleeding finally stopped and Alexei began to recover (Massie, "Nicholas and Alexandra" 185). Alexandra did not regard this development as mere coincidence; "such manifestation of the power of Gregory's prayers for her boy were for the tsaritsa incontrovertible proof that he alone could save him from death - even at a distance" (Rappaport 117). Her dedication to Rasputin was strengthened by her belief that he had saved and could continue to save her son.

Exactly how Rasputin was able to help the boy is medically uncertain, but some say his "hypnotic presence may actually have helped the tsarevich constrict the arterioles, which are controlled by the autonomic nervous system," and lower Alexei's distress and anxiety, subsequently lowering blood pressure to slow the bleeding (Potts and Potts 100). Hematologic studies have proven that bleeding in hemophiliacs can be worsened or induced by emotional stressors, such as anxiety, anger, or embarrassment; lowering emotional stressors also has a positive effect on bleeding and can slow it down (Massie, "Nicholas and Alexandra" 201-2). Rasputin would often calm the hysterical child, a task difficult for doctors and nervous family members, which could have had some remitting effect on Alexei's bleeding (Stevens 28). Regardless of the actual manner of Rasputin's effect on Alexei, the Tsarina soundly believed that he was the only person who could keep her son alive, a thought that Rasputin echoed to her. He once allegedly said: "Remember that I need neither the Emperor nor yourself...If I am not there to protect you, you will lose your son and your crown within six months" (Massie, "Nicholas and

Alexandra” 341). Even if Rasputin never actually spoke these words to Alexandra, she believed them. The Tsarina was so concerned about losing Rasputin that when an assassination attempt was made on him in the summer of 1914, shortly before the assassination of Archduke Franz Ferdinand, the imperial couple was less concerned with the regicide in Serbia than Rasputin’s survival (Aronson 101-2). The Tsarina’s intense attachment to Rasputin raised a popular conception that Rasputin had significant political influence on the royal family.

The breadth and import Rasputin’s political influence is uncertain, but many sources do indicate that he exerted some political influence at the court near the end of the Romanovs’ reign. Nicholas “declined to discuss affairs of state” with Rasputin, but was also calmed by speaking with him, as was the rest of the Imperial family (Potts and Potts 101). The Tsarina was the one who listened to Rasputin the most, while the Tsar primarily supported him because of his wife’s strong belief in Rasputin. He once said to a critic: “Better one Rasputin than ten fits of hysterics a day” (quoted in Gelardi 174). Despite his own misgivings, the Tsar was acutely aware of the calming influence Rasputin had on his wife and son. While the Tsar was present, Rasputin had little political influence, but his emotional hold on the Imperial family and his familiarity with them still gravely concerned the other members of the family, both the immediate Romanov clan and the extended continental royal family. The Dowager Empress Maria once told a family member that “my poor daughter-in-law does not perceive that she is ruining both the dynasty and herself. She sincerely believes in the holiness of an adventurer, and we are powerless to ward off the misfortune which is sure to come” (quoted in Gelardi 175). Most likely, Rasputin had little influence in the political sphere whilst the Tsar was governing and kept his influence in the resigned to the domestic and religious sphere.

Another factor that had been working against Alexandra when it came to public opinion was the allegations of loyalty to Germany (Aronson 113). Alexandra's German birth sparked rumors that she was loyal to Germany in the war, rather than to Russia. The close familial relationships between the European houses actually served them all negatively. Seven descendants of Queen Victoria and two more Coburg relatives were reigning on the outbreak of World War I (Aronson 111). Subsequently, the Kaiser was accused of being pro-British when caught speaking English to British prisoners-of-war (Aronson 113). George V was accused of being pro-German due to his German blood, even attracting the accusations of H. G. Wells, who called the king's court "alien and uninspiring;" the king replied, "I may be uninspiring, but I'll be damned if I'm alien" (Aronson 153). However, in 1917, George V changed the name of his house from Saxe-Coburg-Gotha to Windsor, after the palace, likely to remove any symbolic connection to Germany (Selwood; "The House of Windsor"). Unable to shake off her German heritage in the same way, Alexandra continued to suffer the harsh comments made about her by the Russian peasantry and courtiers. Coupled with the people's distaste for Rasputin, her popularity was incredibly low during the war.

Once Nicholas decided to take command of the Russian army himself in 1915 during World War I and left for *Stavka* (Russian military headquarters), Alexandra became regent and Rasputin subsequently gained more influence, now political in addition to domestic and religious (Rappaport 248-50, Potts and Potts 107). While Rasputin had no ambitions to truly rule Russia, he did want those who opposed him and his lifestyle out of his way (Massie, "Nicholas and Alexandra" 342). He encouraged Alexandra to elevate ministers that liked him and release those who did not (Aronson 146; Massie, "Nicholas and Alexandra" 342). When the Tsar requested Alexandra's help in meeting with ministers and running operations while he was away, Rasputin

became Alexandra's sole advisor (Massie, "Nicholas and Alexandra" 346). In addition to Rasputin's advice, Alexandra also strongly believed in the autocracy of the Tsarist regime, that no compromise of the Tsar's authority was appropriate. She encouraged her husband to be more firm in his rule: "You are Autocrat & they dare not forget it;" "Play the Emperor! Remember you are the Autocrat. Speak to your Ministers as their Master...Be like Peter the Great...Crush them all" (Gelardi 237). She particularly wanted to ensure the autocracy was in place for Alexei, because she was concerned he would not "be his own master" due to his character if they made any concessions "whilst the people are still so uneducated" (quoted in Gelardi 241). She wrote to the Tsar in autumn of 1916 that "all my trust lies in our Friend [Rasputin], who only thinks of you, Baby [Alexei] & Russia. -- And guided by Him we shall get through this heavy time" (quoted in Gelardi 241-2). While Nicholas sometimes ignored the political advice given by his wife in his letters, he also remarked that he trusted only his wife when his brother-in-law tried to discuss the political instability that was mounting in the capital (Massie, "Nicholas and Alexandra" 344; Gelardi 245). Alexandra's constant letters imply that Nicholas was not giving her advice that was partially relayed from Rasputin the answer and significance she wanted it to have, but the Tsar also never completely refused her advice either (Massie, "Nicholas and Alexandra" 343). Regardless of Rasputin's actual level of influence, the perception was that the Tsarina and subsequently the Tsar were very strongly influenced by him. Understanding the serious political implications of this perception and the risks to the imperial house, its members took matters into their own hands.

Prince Felix Yussoupov, the husband of the Tsar's niece Irina, was the man who ultimately decided to kill Rasputin late into December of 1916.¹² Along with a group of other

¹² Rasputin's actual date of death is recorded variously as December 17 or December 29, 1916, due to Russia remaining on the Julian calendar. The first attempts on his life were likely made late on December 29, 1916

nobles and politicians that feared the monk's influence over the Tsarina, Yussoupov lured Rasputin to Moika Palace under the guise that his legendarily beautiful wife would also be in attendance, knowing Rasputin's fondness for attractive women (Massie, "Nicholas and Alexandra" 375). Rasputin accepted and went to the Yussoupov's palace at midnight, where he was given poisoned cakes and poisoned wine, neither of which killed him, much to the attempted assassin's shock and confusion (Massie, "Nicholas and Alexandra" 376). After two hours, the prince decided to shoot Rasputin in the back, but the shot did not kill him either (Massie, "Nicholas and Alexandra" 377). Rasputin attempted to run, but ultimately was struck one or two more times with bullets from another conspirator, right-wing politician Vladimir Purishkevich. With Rasputin finally unable to flee, Yussoupov beat him with a club until he appeared to be dead; the conspirators then bound him, wrapped him in a carpet, and threw him under the ice into the Neva River, believing they were disposing of his body. However, when Rasputin's body was recovered three days later, his lungs were filled with water. Despite the poisoning, shootings, and beatings, Rasputin had broken free of his ties and drown in the river (Massie, "Nicholas and Alexandra" 378-80). The Tsarina was devastated; the Tsar was shaken and hurt that his family members would kill a peasant (Massie, "Nicholas and Alexandra" 381). Others rejoiced in the streets of St. Petersburg (Massie, "Nicholas and Alexandra" 380). In a letter to her husband King George V of Britain, Queen Alexandra wrote that Rasputin's death "was only regretted by poor dear Alicky who might have ruined the whole future of Russia through his influence" (quoted in Van der Kiste 126). Members of the Romanov family and their relations abroad were pleased to hear of the fall of Rasputin, many believing that the throne was saved. However, ten weeks later, the Russian Revolution broke out in St. Petersburg, setting the course for the topple of the

(New/Gregorian Style) and he died on December 30. Ironically, Rasputin had left a letter for the Tsar predicted the end of the Tsar's reign should nobles kill him prior to January 1 (Massie, "Nicholas and Alexandra" 374).

Romanov dynasty (Van der Kiste 126). The fall of the centuries old dynasty would come faster than anyone expected.

Nicholas left to return to Tsarskoe Selo outside St. Petersburg after a telegram from Alexandra and a telephone call from his brother Michael the day after the Russian Duma assumed power from the Tsarina, March 13 of 1917 (Aronson 149). On his way back, Nicholas was stuck on board the royal train bound back to the capital and was offered two options by the Duma (Russian Parliament): either head to St. Petersburg with loyal troops and begin a civil war, or abdicate the throne (Gelardi 257). The Provisional Government wanted to maintain the Romanov dynasty but remove Nicholas and Alexandra from positions of power; their suggestion was to name Alexei, who was only 12 years old, as Tsar with his uncle Grand Duke Michael as regent. Nicholas consulted his doctor immediately on Alexei's condition; the doctor reminded him of the incurable nature of Alexei's disease, and that the boy would forever be subject to any accident (Stevens 28). Additionally, it was made clear to the Tsar that Alexei would stay in Russia and his parents would be exiled, separating them indefinitely from their young and sickly son, who was the center of their lives (Van der Kiste 127). Furthermore, like many other patients of hemophilia, Alexei's frequent bouts of illnesses had put the boy far behind in his studies (Rappaport 249). He was probably even less prepared than the average twelve-year-old heir to be named Tsar, and it is quite impossible to know if he could catch up by the time he reached the age of majority. Not wanting to be separated from his son, Nicholas abdicated for both himself and Alexei, giving the Tsardom to Grand Duke Michael. While the Provisional Government had believed they could create a constitutional monarchy under Alexei, they were concerned about potential autocratic tendencies of Michael if he was not restrained by a regency (Sherman 13). Recognizing that he would not be able to hold onto the throne, Michael abdicated almost

immediately, bringing about the end of the 300-year-old Romanov dynasty (Potts and Potts 110; Stevens 28).

The years 1917 to 1919 brought about the collapse of numerous European monarchies, but the Russian throne went first. The fall of the monarchy culminated in the brutal, bloody execution by rifle, bayonets, and beating of the Romanov family in basement of Ipatiev House in Yekaterinburg on July 16, 1918 (Massie, “The Romanovs” 5-6; King and Wilson 307-12). The anti-Bolshevik White Army was approaching the town, and out of fear that the White Army would liberate the family, the Bolshevik government authorized their execution (Massie, “Nicholas and Alexandra” 516). The execution was not quick. It totaled around twenty minutes, with many members of the family and their retainers enduring multiple bullet and stab wounds before dying, due to the smuggled jewels sewed into their undergarments which acted as protection. The four daughters watched their parents shot and Alexei stabbed to death before dying themselves from close-range shots and bayonets. Yurovsky, the chief executioner, later recalled “they wouldn’t die” despite their enormous injuries; even the hemophiliac Alexei survived a surprising number of stab wounds before being dying from a close-range shot to the head (King and Wilson 306-10). The murders were brutal enough that the some of the soldiers charged with the murders were repulsed by the carnage and overwhelmed by the toxic gun fumes in the rooms, forcing Yurovsky to halt the executions midway through and then send men in again to complete the executions (King and Wilson 309). Eight days after the murders, the White Army took Yekaterinburg (Massie, “Nicholas and Alexandra” 518). They searched for the family, but found only Alexei’s starving dog and a thoroughly scrubbed basement.

The ill-health of the hemophiliac Alexei therefore had a direct effect on the timing of the collapse. While the Romanov dynasty was certainly heading for its conclusion, the Tsar’s

decision to abdicate in favor of his brother instead of his son immediately squashed the potential for a constitutional monarchy. The actual establishment of a fully constitutional monarchy under a Tsar Alexei II was unlikely to last for any length of time given the political situation of the Russian revolution, but Nicholas's abdication on account of his son's health cut off the path as an option. Furthermore, Alexei's health contributed to the increasing resentment against the Tsarist autocracy and the Romanov imperial house. The Tsarina's desperation for help for her son when traditional medicine had failed her made her even more susceptible to the pull of a questionable figure like Rasputin. While the full extent of Rasputin's actual political influence cannot be known, the relationship between him and the royal family only further fueled the resentment that was brewing against the family following their decision to further isolate themselves from the Russian people. Their decision to isolate was prompted in part by the desire to preserve the image of the autocracy and protect Alexei, but only served to vastly decrease their popularity and ultimately end the autocracy they had strived to save for their beloved son.

Deceased Monarchs as Symbols: A Russian Example

The lack of bodies prompted international fascination over what exactly happened to the Romanovs in Yekaterinburg in July 1918. For decades, the location of the bodies was unknown, the official records of the death and the report by the executor-in-chief carefully hidden by Soviet politicians. In 1991, the bodies of all but two members of the royal family and the loyal members of their household were discovered outside of Yekaterinburg, buried in an abandoned mineshaft (Massie, "The Romanovs" 40). The other two missing bodies, later confirmed by DNA testing to be those of Alexei and one of his sisters, were discovered nearby in 2007; this discovery proved once and for all that all members of the Imperial family and their entourage had been killed and none had escaped, officially disproving the series of imposters that had come

forward with claims over the decades (Harding; Levy; Coble et al. 4).¹³ The murders themselves had been brutal, and the brutality continued when it came to the disposal of the corpses by the Soviets. All of the corpses had been “violently disfigured” from the manner of execution in addition to their rough transport from Ipatiev House into the woods outside Yekaterinburg; their faces, perhaps in an attempt to make them unrecognizable, but also perhaps out of a desire to punish their victims, had been completely smashed in with rifle butts (Massie, “The Romanovs” 8). The corpses were stripped down prior to burial, and may have been further assaulted at this point; one member of the party was later quoted in an account as saying, “Now I can die in peace because I have squeezed the Empress’s ---,” the last word being crossed out, but with a fairly evident implication (8). The soldiers were upset that the Romanovs had been executed at Ipatiev House and not in the woods as they had previously been told; likely, the men had wanted to abuse the women prior to their deaths. The corpses were not given a proper burial, instead burned, further disfigured with sulfuric acid, and thrown down a mineshaft; grenades were then tossed in the mineshaft to further maim the bodies and collapse the shaft, which failed, resulting in their transfer to another location for burial (King and Wilson 330).

While an argument can certainly be made that the violent death and subsequent treatment of the corpses of the Romanovs was a product of the revolution and a decision to hinder future discovery and identification of their remains, the murder of the Romanovs lines up with a standing tradition of punishing the bodies or representative symbols of former leading figures.

¹³ American experts have asserted that this sister is Anastasia, while Russian experts believe it to be Maria. Since neither sister had issue, there is no way to determine which sister is which with genetic testing; it can only be confirmed that they are a child of Nicholas and Alexandra. Given Maria and Anastasia’s relatively close age, similar looks, and the damage their corpses sustained, positive identification of the individual corpses is nearly impossible (Massie, “The Romanovs” 63-67). In American pop culture, the myth of Anastasia’s survival persisted until the last body of the four sisters was found, through various media productions about her and numerous claimants to her identity, such as Anna Anderson, amongst others (see Massie, “The Romanovs,” section II: Anna Anderson).

Bodily representations of deceased royalty in the form of effigies and the honoring of selected body parts of royalty in ways not given to the average members of society (e.g., the Habsburg tradition of burying their hearts separately from their bodies) has been practiced for centuries, but these symbols can also become “objects of vilification” (“Habsburg: Austro-Hungarian Heir’s Heart Buried;” Tarlow 73). The thought of punishing bodies after death implies that “the social identity between someone and their body did not cease at death: that the body continued to act as an index of the person past the point of death” (Tarlow 73). Therefore, the punishment of the body postmortem would still do harm to the person, despite the fact they were no longer present in the body. This is particularly true for individuals who represent something larger; the monarch represents the head of the state, the body politic, a “transcendent royalty that cannot die” completely (Tarlow 72). The Romanovs represented the monarchy, which the Bolsheviks deeply despised. By desecrating the bodies and denying intensely religious people a proper burial, the punishment of the Romanovs continued past their painful executions.

This concept that the identity of the royal individual extends to the deceased body can also have more positive applications. In 2000, Nicholas II and his family were canonized as passion-bearers in the Russian Orthodox Church, a category of saints identified by a Christ-like endurance of suffering and death from political enemies (“Nicholas II And Family Canonized For 'Passion'”). Through their canonization, the bodies of the Romanovs are now considered relics, important religious objects for the Orthodox church that are often remains or personal effects of a saint and are placed in the church altar in order for services to be conducted (Massie, “The Romanovs” 135). Their elevation to sainthood was not without intense controversy. In 1981, the Church Abroad elevated the Romanovs to sainthood, putting pressure on the Church within Russia (Massie, “The Romanovs” 133). Many Russians in the late 1990s still regarded

Nicholas as partially responsible for his own death, and could not separate his private, family identity of being a good man with the weak, ineffectual tsar for which there was little respect (Massie, “The Romanovs” 134; Warren). However, given that “martyrdom has nothing to do with the personal actions of a person...it only has to do with why and how that person died,” Nicholas’s poor political abilities were not completely relevant to the Church’s considerations (Massie, “The Romanovs” 134). Despite the controversy surrounding the Romanovs’ elevation to sainthood, the decision by the Russian Orthodox Church within Russia shows that even after a dynastic family has both been dead for decades and lost all ruling power, there is still a perceived divine connection between the bodies and identities of the dynastic family and God.

The Romanovs join a long list of royal saints in different religions, including another monarch who lost his throne, but not his life, in World War I, Emperor Charles I of Austria-Hungary (“Emperor Charles to Join Many European Monarchs at the Altars”). Charles I was beatified - a stepping stone to becoming a saint - by the Vatican in 2004 after a miracle was attributed to him. There was intense criticism surrounding this beatification as well; his critics accused the then-Pope of beatifying a “buffoon” (Traynor). However, the decisions of the religious leadership to go through with these canonizations processes despite political criticism, and the support they received by various groups, indicate that even in the contemporary age, the bodies of royalty have a different identity ascribed to them than the bodies of most non-royals, and a perceived divine connection.

The Collapse of European Monarchies

The murder of the Tsar and his family shocked the royal world. For a monarch “to be killed in cold blood by his subjects in civilized, twentieth-century Europe struck Nicholas’s fellow monarchs as the most dastardly of crimes,” having no equal other than the guillotining of

Louis XVI over two centuries prior (Aronson 176). Kaiser Wilhelm II could not sleep, according to his daughter-in-law. George V expressed his deep sadness over the death of his cousin, seemingly forgetting that he had been the one to rescind the most plausible offer of asylum the family had: “It was a foul murder. I was devoted to Nicky, who was the kindest of men and a thorough gentlemen; loved his country and people” (quoted in Aronson 176). Marie of Romania, whose son briefly courted Olga, wrote: “Poor Nicky! I shudder to think of your end, you, who knew all power and glory; and such a death! Surely God recognises in you the good man you were” (quoted in Aronson 176). While mourning their cousin, the royals also began to worry for their own crowns.

The conclusion of World War I would see the additional fall of two other great monarchies of Europe, the Hohenzollerns in the German Empire and the Habsburgs in Austro-Hungarian Empire. The only major throne still intact in Europe was the British (Aronson 193). When the Russian throne fell, the monarchs of Europe became panicked. While the peace talks had been happening behind the scenes using neutral family members as mediators, Emperor Charles I of Austria-Hungary began to increase his avocation for peace talks out of fear that the Empire would collapse if monarchies continued to fight each other (Aronson 151).¹⁴ Some monarchs scrambled to make constitutional changes and give more power to the people, with varied degrees of success. Germany granted universal suffrage; Austria recalled the Parliament; Romania promised “more equitable distribution of land” following the war (Aronson 152). The death of Nicholas II had made monarchs more amenable to abdication when the time came,

¹⁴ Emperor Franz Joseph I had died in 1916, leaving his grandnephew Charles (Karl) to succeed him on the throne as the last Emperor of Austria and King of Hungary. Charles was the nephew of Franz Ferdinand, as none of Franz Ferdinand’s children were eligible to be heir presumptive due to the Archduke’s morganatic marriage. Franz Joseph’s only son Rudolph had killed himself in 1889, leaving no direct male heirs to ascend to the throne.

however, not wanting to risk ending up like the Russian Imperial family (Aronson 176). The reasons for the falls of the various crowns differed greatly from empire to empire. Military defeat, nationalistic attitudes, self-governance movements, and inability to adapt to the democratic movements of the times were all factors (Aronson 194).

One thing that many thought could save the monarchies and the political structure of the European continent was the family connections between the sovereigns. After all, the point of many royal marriages was to establish a connection between nations that ran deeper than alliances or trade partnerships. As previously mentioned, however, the familial ties across borders negatively impacted the public perception of the monarchies. The ancestry of monarchs was often pointed to as reasons that the monarchs would not be loyal to the state they ruled. While the close relations to other nations was detrimental in public perception, some monarchs thought it may be useful to make peace even though it was not enough to prevent the war itself. Family members strove to act as intermediaries for peace between the warring branches of the family; the neutral monarchs King Alfonso XII of Spain and Queen Wilhelmina of the Netherlands were happy to help and passed letters between opposing family members and tried to form peace agreements (Aronson 118). These peace discussions mediated by family all fell through. Given the change in the power of the sovereign, however, there was little that these family connections could actually do to keep the members of their extended families safe or to stop the war. Most monarchs at this point were not actual sovereign, and had to defer to Prime Ministers or elected governments; Empress Zita, the last Empress of Austria-Hungary, remarked: “If we had a friend in Germany it was the Emperor William...but he was completely under the thumb of the generals” (quoted in Aronson 144). In the face of militarism and nationalism,

familial connections “counted for nothing” (Aronson 108). Therefore, the carefully cultivated connections between royal houses actually did little to serve their political purpose.

The personalities and ruling styles of the leading men of Europe’s empires was another factor in the collapse. The sovereigns of the three primary empires - Franz Joseph, Kaiser Wilhelm, and Nicholas II - were not resolute enough to attempt to exert control. Each had a flaw that harmed the political situation preceding the war; “Franz Joseph [was] too hidebound, Nicholas II too vacillating, Wilhelm II too insecure” (Aronson 107). Franz Joseph, a supporter of the duel, felt the need to protect his honor and refused to be insulted by a small nation like Serbia, especially when large empires showed their power by keeping smaller nations in check (Okey 374-7). Nicholas II felt that he was honor-bound to protect the other Slavic peoples, including the Serbs, and also strongly felt that Russia could not be humiliated by appearing weak and not intervening (Aronson 104). Additionally, there was a sentiment at the time by both staff and leaders that a glorious war and victory would fix any internal problems that the empires would face, which was a gross political miscalculation. The war ended up exacerbating the issues within the empires. The deep-seated beliefs of the reigning monarchs and their personalities therefore worsened the political situation for monarchies going into World War I.

One of the various nails in the coffin of the European monarchical system was President Wilson’s Fourteen Points. The American entry into World War I in 1917 brought less than a year later Wilson’s famous Fourteen Points, several of which called for “autonomous development” of ethnic groups and independent states for many Slavic nationalities (Wilson). Wilson remarked that America was fighting “for democracy, for the right of those who submit to authority to have a voice in their own government, for the rights and liberties of small nations” (quoted in Aronson 151). Some empires - particularly Austria-Hungary - were struggling to maintain authority over a

multiethnic society while liberal nationalism was on the rise. The idea of the nation-state was increasingly prevalent in political thought at the turn of the century, as discussed earlier. The “new doctrine of liberal nationalism” was a challenge “to autocratic institutions generally, and to the legitimacy of the Habsburg rule specifically,” contributing to the fall of the Austro-Hungarian monarchy and influencing the collapse of others (Roshwald 10). Wilson’s Fourteen Points added fuel to the anti-monarchy sentiments of many minority groups and many members of the European peasantry or middle-class. The revolution of the people against the old order was strong enough that it toppled those monarchs who could not adapt to the time and acted like autocrats rather than surrendering more power to the people in a timely manner. While some of Queen Victoria’s descendants still sit on European thrones today, the vast majority of monarchies were eliminated during World War I or relatively soon thereafter. Those that remain have little to no political power and act primarily as figureheads and cultural or historical symbols rather than actual rulers.

Implications for Other X-linked Genetic Diseases

The cases of hemophilia in the royal community also speak to the stigma, blame, and guilt attached to female carriers. Since the disease was transmitted down the maternal line, and this mechanism was at least vaguely understood, the disease exacerbated the distaste for women by the public and sometimes those in the royal family they married into. While the disease has long since died out in the royal lines, hemophilia is a disease that still affects around 400,000 people worldwide (National Hemophilia Foundation). Women tend to experience blame for X-linked disorders, as shown in the case of Queen Ena of Spain, and this feeling has not been decreased in the modern age with the advancement of genetic testing and the ethical issues attached to being notified of one’s carrier status when a family member is affected by hemophilia

(James et al. 234; 238-40). In a study of at-risk carriers (female relatives of people with hemophilia) in South Africa, very few women voluntarily came forward to seek genetic counseling after having been notified by the afflicted family member of their potential carrier status (Gillham et al. 979). 59% of potential carriers were not aware of their carrier status, having never been tested (Gillham et al. 983). Though the study only surveyed seventeen women, many expressed a desire to not know their carrier status (Gillham et al. 981). Those who either had a son diagnosed with hemophilia and knew of their carrier status experienced a cycle of “denial, guilty, blame, acceptance, and faith,” some having initially turned to occult or traditional healers in attempt to find cures, similarly to the case of Tsarina Alexandra (Gillham et al. 982). In this small study, none reported blame from their husbands, but the women often blamed themselves instead; the James study on blame was more comprehensive, with a larger sample size, and indicated that family members may also blame the mother in addition to her own self-blame (Gillham et al. 982; James et al. 238-40). Therefore, mothers and sisters of hemophilia patients are likely to experience psychological repercussions after knowing that they possess the gene that can transmit hemophilia.

This falls in line with other X-linked genetic disorders beyond hemophilia. Mothers in children with Fragile X syndrome report “feelings of anger, depression, and self-blame” (cited in Lehmann et al. 366). In a study of women carrying a gene that indicates a risk of breast cancer, high-risk women were more inclined to report psychological distress than women who were not at risk (Dorval et. al 320). Many women may want to save themselves the psychological distress that may accompany a carrier diagnosis, or do not wish to know because they would not change their behavior with a notification of their status; for example, they would not terminate a pregnancy due to prenatal diagnosis of hemophilia (Gillham et. al 981). In a study of thirteen

grandmothers who had grandchildren with a genetic disorder or a daughter who had terminated a pregnancy because of a genetic disorder, they described feelings of ongoing guilt; many worried about the quality of life of the child going forward, even with available modern treatment. One grandmother described it as “you feel really as if you’ve passed a death sentence on to them” (Lehmann et al. 368). The study also showed that the diagnosis could bring families closer together as they worked through the emotional process together, but could further deteriorate already tense relationships (Lehmann et al. 369). This is reminiscent of the intense closeness of family in the Romanov case and the shattering of relations between Alfonso and Ena in Spain. However, even with more advanced medical knowledge, the social construction of worry over the lives of those who are not considered “normal” and are perceived to be genetically imperfect prevails. The knowledge of genetic mechanisms relating to these X-linked diseases may even have increased the psychological distress factors in women. In the historic cases of Queen Victoria’s descendants, there was enough misunderstanding about genetic mechanisms that some carriers, such as Queen Victoria herself, did not experience the same feelings of guilt or blame because the exact mechanisms were unknown. While it was suspected that the disease was maternally inherited, medical science had yet to confirm it, so there was a certain ignorance that the mothers could possess. Women’s reluctance to be tested in South Africa and the feelings of guilt displayed in studies on Western women show that attitudes toward genetic disease still hold parallels with historic cases in the modern era.

Even with the shifting in treatment and medical knowledge now available, blame and guilt are still attached to X-linked genetic carriers. Shifting medical knowledge across time and space failed to completely alleviate the problems faced by women who carry genetic disorders and those affected. While social attitudes in the Western world toward disability are shifting, the

psychological components of processing and understanding a disease such as hemophilia still have some parallels to the history of the affected royals in the late nineteenth and early twentieth century.

Research Limitations

This research was restricted in part by the language of the sources available. In future research, using primary sources in languages extending beyond English - Spanish and Russian, for example - may be useful in providing a comprehensive analysis of public attitudes toward those affected with the disease from a first-hand account from the time period. The research was also restricted in the interest of time; in order to address completely all aspects of gender, guilt, blame, and the historical impact of hemophilia, an extended timeframe would be necessary. Future research would also contribute to the concepts presented in this work if the scope was broadened to include other X-linked disorders, the mental illnesses known for being passed down in royal lines, or a study on how disease impacts political from a broader lenses beyond royalty. Further studies on the shifting medical attitudes toward hemophilia would also add to the conclusions presented here.

Conclusion

In a time when monarchs were often viewed as symbols of the state, hemophilia did nothing to improve their failing images - in fact, the presence of the disease exacerbated some of the political issues of the time. Royals, already separated from society, would be prone to retreat from their people even further in attempts to conceal perceived “imperfections” in their children, such as the Russian case. This only exacerbated the political issues at hand and encouraged rumors about royal families that were not displeased due to the intense secrecy surrounding courts. One of the primary tools of international relations in the time of monarchs was the

orchestration of royal marriages; the presence of hemophilia complicated this long-standing political tool, either by distancing relative or potentially creating concerns in other houses that the disease may be transmitted. While it is truly impossible to know whether hemophilia was a deciding factor in marriage considerations, the effects hemophilia had on the personal lives or those afflicted and their families created complications when it came to royal marriage. The ties formed by royal marriage also backfired during First World War as true loyalties were called into question in way that would not be as applicable to elected politicians. With the rising tide of liberalism and nationalism, backed by the United States, European monarchies were already at risk of losing their thrones; the sudden appearance of hemophilia in the royal houses only served to negatively impact the personal lives of monarchs, potentially affecting their political decisions.

Given the lack of medical knowledge at the time and the misunderstandings around the disease, the lives of heirs were cut short and women suffered a stigmatization that holds over into modern times, even with the invention of effective treatment options. While this stigmatization and guilt may be self-inflicted or ascribed, the emotional turmoil that medical diagnoses as carriers or mothers of affected children remains strikingly similar to the historical context. Carriers and their partners today still have to make similar decisions - such as whether to have children when they know that the disease is present, and women have a unique pressure when it comes to these decisions in X-linked genetic disorders. While medical knowledge has shifted across time, the historical and modern parallels show that medicine and society's perceptions of genetic "imperfections" still have gendered connections. In order to move away from the blame and guilt surrounding these genetic conditions, society must take steps toward accepting those with genetic differences.

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Appendix: Known and Suspected Hemophilia Carriers and Hemophiliacs

1. Queen Victoria (1819-1901)
 - a. Princess Alice (1843-78), carrier
 - i. Princess Elizabeth (1864-1918), unknown but potential (no issue)
 - ii. Princess Irene (1866-1953), carrier
 - i. Prince Waldemar (1889-1945), hemophiliac (no issue)
 - ii. Prince Heinrich (1900-4), hemophiliac (no issue)
 - iii. Prince Friedrich (1870-3), hemophiliac (no issue)
 - iv. Princess Alix (1872-1918), carrier
 - i. Grand Duchess Maria (1899-1918) or Grand Duchess Anastasia (1901-18); either Maria or Anastasia is a carrier but their bodies remain indistinguishable (no issue)
 - ii. Tsarevich Alexei (1904-18), hemophiliac (no issue)
 - v. Princess Marie (1874-8), unknown but potential carrier (no issue)
 - b. Princess Helena (1846-1923), unknown but potential (daughters had no issue; only 2/4 sons lived to adulthood, none affected)
 - c. Prince Leopold (1853-1884), hemophiliac
 - i. Princess Alice (1883-1981), carrier
 - ii. Prince Rupert (1907-28), hemophiliac (no issue)
 - d. Princess Beatrice (1857-1944), carrier
 - i. Princess Victoria Eugenie “Ena” (1887-1969), carrier
 1. Infante Alfonso (1907-38), hemophiliac (no issue)
 2. Infante Gonzalo (1914-34), hemophiliac (no issue)

- ii. Prince Leopold (1889-1922), hemophiliac (no issue)
- iii. Prince Maurice (1891-1914), disputed hemophiliac due to his
military service active combat record (no issue)

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