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When All Seems Lost:
A discussion on the implications of
using medicine for scientific advances

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Senior Thesis
December 2013

SYNOPSIS:

Leo Weinstock, a Jewish man living with his family in Germany, witnesses the complete destruction of his world when his family is rounded up and taken to Dachau and, there, he is selected for high-altitude experiments meant to inform scientists of the effects pilots could face during a flight. Simultaneously, Erich Weissenberger, a young Luftwaffe pilot, joins the war effort and quickly becomes a well-known, successful pilot defending his country. Their lives, although very different, explore the ethical dilemmas resulting from using human experimentation for medical and scientific advancement.

CHARACTER DESCRIPTIONS:

Erich is based off Erich Hartmann (Constable, Toliver 1970). At 352 confirmed kills, Hartmann had the highest number of aerial victories of any of the aces. If every Luftwaffe pilot had used his four-method model of attack (“See-Decide-Attack-Reverse, or Coffee Break”), Germany would have had a much better chance at winning the war. He was known for his athleticism, rather than intelligence. “Bubi” Hartmann was quiet and reserved. He met the love of his life at 18 (Usch was 15 at the time). Beyond all his medals and awards, his proudest accomplishment was that he never lost a wingman.

Obviously, my character differs from Erich in a few selected ways, which is why I changed his last name to that of another ace. He is still 18 and, therefore, I wanted him to start off arrogant and proud, to know how skilled he is and to not be afraid to talk about it. Although I do not know what it means to be an 18-year-old male, I can imagine that there is a sense of feeling on top of the world. Almost, indestructible in a way. For that reason, Erich doesn’t quite have a grip on his place in the world or what his life means. He is proud of his talents and overplays his confidence. Yet, as it does to most men, the war changes him. He slowly becomes more humbled with each flight and even more so when he meets a girl. I wanted war to teach him what it means to live for something more than himself.

At the same time, he doesn’t know exactly what’s going on with the war. Like most pilots, he is unaware of the experiments justified to help him, and he fights for his country the best way he can. I wanted his journey and time in the

war to reflect what Leo goes through so that it would be clear why I wrote about the two in conjunction. Although I didn't get to what happens after the crash, it was always my intention for him to survive the war, unlike Leo. His arrogance and pride are meant to enhance Leo's innocence and kind character, but he is never meant to be the "bad guy." That role, most obviously, is left for the scientists conducting the experiments. However, even if it is easy to hate the Nazi doctors and all they did medically in the name of science, it is also easy to forget that there was some rationalization in the matter (however biased and flawed it may have been). Erich is the character meant to remind the reader of the reason behind some of the unethical application of science.

Leo is 37 and has a wife and two beautiful daughters who, he is happy to say, look just like their mother. He owns a furniture shop that he took over from his father. He is humble and doesn't believe in handouts. Therefore, he works very hard for a living and is teaching his daughters to do so as well. The reason he ends up in Dachau is because of his brother, who is politically active against Hitler and the Nazi party. Historically, Kristallnacht marked the mass arrest of Jews from their homes who carried with them few belongings. (Jewish Virtual Library) About 11,000 Jews were deported to Dachau as part of the pogrom. The first Jewish prisoners were known political opponents and that's part of the reason Leo wasn't released like many of the prisoners were after a few months in the camp.

Leo is not based on a single person because there aren't a lot of resources on individual stories of those who experienced experimentation (at least not beyond the Mengele twin experiments). I got his age from the letter incorporated in the last scene where Leo passes away. I haven't been able to find any other information based on the nameless man's life. This is an important fact for me. Obviously, millions suffered in the years Hitler was in power, but it is in the individual stories that connections are made. It's easier (note I did not say easy) to study an event like the Holocaust, find out the number dead, and move on. However, I believe that in learning about individual stories, people really start to relate to the lives of those who suffered. It's much more difficult to look past the atrocities of the Holocaust knowing the lives of people like Leo. To know that his sole goal in life was to keep his family safe makes the tragedy so much more

real. People then start to focus on things they have in common with the characters and feel their pain when they are lost, or even if they survived. That's why Leo is important: to give a face to masses that suffered. Although he was not a real person in the exact sense, he is a compilation of people. He can represent more than just one person who suffered and died in the name of science and for that, his life on paper is important to me.

I'm still working through what happens to Leo's family. I would like to say that they survive him, but part of me feels like that's not fair to the millions that did die. I specifically picked the name of his oldest daughter to be Ava, which means life. Therefore, I think she will eventually survive, but how tragic to be the sole survivor and experience the loss of her entire family.

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* In a letter to... explanation of experiment and outcomes...

“Nazi medicine challenges the ethical foundation of medicine today. Whereas the genesis of bioethics occurred in the ashes of Nazi Germany, modern medicine has been unable or unwilling to recognize the enormity of the role played by medicine in Nazi Germany, or the implications of that role for medicine and medical science today. Nazi medicine was neither an aberration that arose in 1933 and disappeared in 1945, nor was it an anomaly relevant only to Nazi Germany and German-occupied Europe. Nazi medicine had its origins in the same academic and professional environment that influenced the development of the health care systems of the developed world. It was created and developed in the birthplace of scientific medicine: 19th and 20th Century Germany. The German medical school, which served as a model for medical education in North America, is the same medical school that graduated physicians who became practitioners of evil. Nazi medicine thrived in the health care system that gave the world socialized medicine. It did not die on the gallows at Nuremberg; its influence continues to this very day.

Nazi medicine eroded the foundation of medical practice, the relationship of the physician to human life. Medicine could achieve a better understanding of that relationship by studying its pathology through a dissection and analysis of the worst hour in the history of the profession: 1933-1945.” (Caplan 1992)

SCENE 1:

Erich's family agreed that he was not the intellectual type. He much preferred spending time with friends and participating in athletics. He was outgoing, if a bit arrogant at times. However, he was fiercely loyal to his family and close friends and got along with everyone. Oftentimes it was said that you just couldn't avoid falling for his charm and charisma.

Despite his father's desire for him to become a physician, Erich couldn't shake the love of aviation that stemmed from his mother. She had her pilot's license and even served as instructress for a gliding club she formed for local boys. He was naturally talented even at a young age. His early acquaintance with flying later led to his understanding of the aircraft.

He wasn't originally planning on joining the war. However, as it became obvious that it wasn't a matter of if, but a matter of when, he enlisted in the Luftwaffe. As a man who takes life head-on, he couldn't resist the glamorous trade of fighter piloting.

Within a month he started learning the military discipline for which he never developed any enthusiasm. It wasn't until he reported to the Air Academy School at Berlin-Gatow for flying training that he really peaked his interest. Training lasted a year and it was there he first learned emergency training procedures and other essential information.

His instructors immediately determined that he had what it would take to become a fighter pilot and he moved on to the advanced flying course. The course lasted three months and from there he was posted to Zerbst/Anhalt and

the Fighter School where he was introduced to the Messerschmitt 109. It was a legendary machine every German pilot dreamed of flying and Erich was no exception.

His natural abilities at shooting were revealed right away and he quickly showed promise of becoming a well-known fighter. On 31 March 1942 he was commissioned Second Lieutenant, an award he felt he rightly deserved. It was only a matter of time before he would put his skills to good use and prove his rightful place in the air.

The onset of the persecution of Jews seemed distant to Leo and his family. No one knew what to think when Hitler took power in 1933. They decided not to leave their home. For a while nothing happened. Then, stricter enforcements were implemented. The Nuremberg Laws were enacted 15 September 1935. They formed the legal basis for exclusion of “undesirables” from German society. At that point immigration quotas were strict in most of the world’s countries. Proper documentation was necessary. It took months or years to leave. They decided to try anyway. Leo made necessary connections and worked to gather false documentation.

Time passed without any major conflict. Leo and Sonia prepared to flee. However, Kristallnacht was a turning point. On 9 November 1938 Jews were freely attacked in the streets, in their homes, and their places of work and worship. Leo had come home hopeful of escape and was arrested instead.

Their daughters were terrified. They cried as Leo forced them to hide with their mother. Two men pounded on the door. They broke it down before Leo could answer. He thought quickly. He convinced them he lived alone. They dragged him out in street. He carried with him few possessions.

The girls and their mother waited silently. They passed the night in a fitful sleep. When they awoke, they went directly to the shop. Part of them hoped he would be there waiting. Instead, they found it had been destroyed. The windows smashed in. The furniture crushed. Hopeful that he would reunite with them in a few days time, they took the time to clean up as best they could.

It was assumed that those arrested would be sent to prison. Instead, Leo found himself shoved into a cattle car and shipped off. He had no idea what Dachau was, but he would soon find out.

SCENE 2:

Erich prepared for his first combat mission. The cockpit felt foreign despite the growing number of times he had spent inside it. Stillness filled the air. Words escaped him. It was 14 October 1942 and seven IL-2s were attacking the roads near Prokhladnyy. The mission was to intercept and attack. A nervous excitement followed him as they took off. His Messerschmitt glided more confidently than he felt. Erich followed Master Sergeant Rossmann up to 4,000 meters.

After about fifteen minutes Rossmann's voice rasped in German over the R/T, "*Attention, eleven o'clock low. Banditen. Close in near to me in fighting position and we'll attack.*" Erich complied as his eyes searched the horizon. He had yet to spot the enemy aircraft. The non-moving targets during training hadn't prepared him for this.

They dove down. It wasn't until 1,500 meters that Erich finally caught view of two dark green aircraft. His untrained eyes couldn't be certain of anything. They seemed about a thousand yards away. Weren't they? All thoughts left his mind. Erich was anxious for his first aerial kill. He had orders to remain near, but instead sped ahead of Rossmann. Landing himself directly in his firing position. He closed in fast and fired two shots. He couldn't have been more than three hundred yards away. There were no hits. Suddenly he found himself surrounded. A ring of enemy aircraft on all sides.

Erich felt his stomach drop. Panic set in. He raced for a patch of clouds. Had they followed him? Did he manage to escape? Rossmann was still there. Wasn't he?

A voice came on the R/T, calm and reassuring, *"Don't sweat it. I watched your tail. I've lost you now that you've climbed through the clouds. Come down below the layer so I can pick you up again."*

Erich took a deep breath and slowly descended. He looked around and found he wasn't alone. Hadn't he lost them? With no time to think, he firewalled the throttle. He descended to treetop height and roared westward. The crash of enemy shells and bullets into his fighter seemed imminent. His attention was taken by a red glow on the control panel. He realized it was the fuel warning light. He had less than five minutes of flying time.

It felt instantaneous. The engine coughed and went dead as he landed. Luckily, Erich was still within German lines. A crew of German infantrymen surrounded him within minutes. They took him back to the base. His direct violation of orders did not go unnoticed. He had violated virtually every established rule. For his tactical sins he was given maintenance duty with the crew for three days.

During the time he spent away from flying he was able to reflect on his errors and take in everything he had learned. It was clear that a sharp mind was more important than muscle memory when in combat. In order to be successful, Rossmann taught him to fly with his head and that surprise attacks were incredibly useful. The importance of the tactics taught by Rossmann would

continue to reveal themselves throughout the time he would spend in the air.

However, one thing would prove to be true again and again: *in the education of a fighter pilot it is what he is shown first that helps him survive and later equips him to carry his new comrades through.*

“As it became evident that man is unable to tolerate many conditions occurring in flight, aviation turned to medicine for investigation of the effects of flying on man and for assistance in answering the questions: *How can man be selected for flying?* and *How can man be protected during flight?*”

The most important aeromedical fields of study were, on the one hand, the development of physiological and psychological methods of selection, and on the other hand, the study of the effects of altitude, acceleration, heat and cold, vibration and noise, and noxious gases.” (German Aviation Medicine)

“[Therefore,] a suitable decompression chamber belonging to the air force was shipped to Dachau. As reports that have been preserved show, the death of the human experimental subjects deliberately entered into the calculation from the very onset.

...

The total number of human subjects from November 1942 to May 1943 was between 220 and 240. Some underwent experiments two or three times. There were sixty-five to seventy deaths.” (Kogon 2006)

The scene before him would have been beautiful under any other circumstance. Snowflakes of ash danced in the breeze. Giving out a sinister feeling mixed with the scent in the air. The sun shined bright in the sky, but heat from its rays didn't quite warm his skin against the chilly air. An unnatural silence surrounded the gaunt shapes at work. Their faces looked at Leo in a way that told him that his troubles would not soon end. Like they knew he arrived in a train-car squished together with 80 others. Like they could see themselves in him. Their knowing eyes pleaded with him to run. While telling him escape was impossible.

Leo thought back to his youngest daughter clinging on to her faded pink blanket as if it were a prized possession and asking him, "Daddy, what's going on?" That was the night he came home with the fake papers for his family and told them they were to flee the country the next day. The urgency in his voice was startling to everyone in the house. His normally calm demeanor was the strength they all counted on.

He thought of what he'd said to take her mind off the troubles, "Don't worry, shiksa, everything will be alright," and of her thumb stuck inside her mouth. He laughed at his wife's obsession with getting her to quit that habit. It all seemed so far away. How he wished his politically active brother had not spoken out against the Nazis, leading to a series of events that took him away from his family and landed him in this hellhole. But, now was not the time for hatred against a loved-one. Energy shouldn't be wasted so foolishly.

Once he arrived at Dachau, he was temporarily drained of all emotions. Selection designated him for work rather than shipment to a death camp. He couldn't even be thankful for the small amount of good news. It was quickly replaced by shaving and a tattoo inked on his arm. The horrors around him were worse than he could have even imagined. How could this happen to him? He was a German citizen, loyal and proud. He had spent his life modestly running a furniture business, falling in love, and raising two beautiful girls.

Thinking of his family set fire to his veins and gave him the hope and determination he needed to survive. He would not give up. He would live through whatever experiences he had to endure at the camp and be reunited with Ava, Else, and his lovely wife Sonia. He had to hope there was still the possibility to see them again.

SCENE 3:

The more he flew, the better trained his eyes were at scoping out enemy aircraft. It took practice. On 5 November 1942, Erich went up with First Lieutenant Treppe. It was a four-ship *Schwarm* near Digora. He was first to spot and call out the enemy ships. Eighteen IL-2 Stormovik ground-attack aircraft with an escort of ten Lagg-3 fighters. Typical of Soviet numerical superiority.

Erich was ordered to take the lead and attack. All fell into formation. Erich took the far left bird of the formation. He opened fire at less than a hundred yards. Surprisingly the machine gun bullets bounced off the intended target. The exterior of the Stormovik was tough. Erich had to take action. Quickly.

All the old tigers had warned him about the armor. They told him the only way to nail the Stormovik. He just had to remember how. Now was not the time to be forgetful. Too much was on the line. He couldn't risk the first time he took the lead. He started to descend and it hit him. He dropped into a dive and ended up below the bird. Just a few feet above the ground. He came up underneath. And held fire until he was about 200 feet away. Black smoke filled the air. The Stormovik quickly enveloped in flames. Erich followed at full idle. The IL-2 fell out of formation. Pieces of the bird hurled directly into his flight path.

Erich noted that his position was still within German lines. His Messerschmitt was smoking. When did that happen? He watched the Stormovik take a death plunge. Quickly, he landed his bird. Flames began leaking out of the engine. Lieutenant Treppe circled to confirm the well being of his comrade. He flew away at the sight of the victor alive and mobile.

His first aerial victory was as thrilling as he had imagined it would be. The infantry swarmed the area and picked up the oddly quiet pilot to return him to the unit. Normally, no one would have had a word in edgewise with the success Erich would be sure to share. However, the more he flew, the more humbled he was by the fine line between life and death while in the air. Instead, he held his tongue and worked out a success strategy for all aerial attacks.

“See-Decide-Attack-Reverse, or Coffee Break” became his mantra for every flight. The first step was to see the enemy, count them and compare their fleet to your own. Deciding whether to attack couldn’t take more than a few seconds after which you would attack and reverse away or coffee break and escape unseen. It was not only this four-step mode that would take him to levels of success he couldn’t even dream of, but also the new-found appreciation for silence and not needing to boast every victory to anyone with ears. The silence and inner contemplation helped him to readily visualize what he needed to do to succeed and he would come to learn just how important that was.

A week in the camp wore Leo down. The lack of food and intense physical strain proved to be a deadly combination. He could feel his muscles grow weak. The hole in his stomach never filled. A mirror would have shown him eyes he didn't recognize. Like the working shapes he saw upon arrival.

The only thing that kept him going was thinking that his family had escaped. With each new arrival he asked what was known of the outside world. He tried to find people he knew. Tried to network throughout the camp. Listened for news. Asked detailed questions. He knew no news was good news. However, the thought of hearing their names was too enticing.

The days crept by. The longer he stayed alive the more he learned. Barrack X was where he had been taken the first day for selection. The surrounding barbed-wire fence was electric. Someone tried to climb it his second day. There were seven guard towers and a building being constructed next to the main camp. The rumors said confidently that it was a crematorium. He wasn't sure what to believe.

Of the 32 barracks only one remained a mystery. Men went in and came out having lost their minds or worse. The rumors weren't as certain. Some mentioned torture. Others, a killing chamber. The worst he heard was a room for experimenting the limits of the human body. Was it possible? Leo thought it best to stay away. If he minded his own business maybe he could escape the camp unharmed.

SCENE 4:

As Erich's time in the air increased, so did his skill. His shooting eye continued to improve. He deliberately went in closer before shooting. His mode of attack was sound and effective. At the same time, his chief crew kept the aircraft in working shape. He accredited much of his success to his crew. It was a difficult job and he owed them a lot.

On 3 August 1943 at 1830 hours, a Lagg-5 went down in flames at his hand. His tally reached fifty. At one time this would have been sufficient to win him the Knight's Cross. Now, more victories were required.

Unfortunately, Russian aircraft and pilots got better. Victories came much harder. That didn't stop Erich. By the end of September 1943 he celebrated his 115th victory. And on 29 October 1943 Lt. Erich Weissenberger scored his 150th victory. He was awarded the Knight's Cross. It was a coveted badge of achievement among the Luftwaffe. Only approximately thirteen hundred pilots had won it.

Winning his spurs also won him the chance to spend two weeks at home. He couldn't wait to unwind and tell his mother all about his victories. What he wasn't expecting was to meet his future wife.

On the afternoon Erich made it home, Adal and a friend were walking home from school. As they were about to walk by, Erich saw her hold her leather bag with her books in a strange way. She tugged it under her arm sideways so that it made everything she was doing surprising: her walk and serious tone of voice while discussing an important political matter. Her giggle at her friend's

witty retort. The way she held her head slightly askew as if she were always asking a question.

Just before they could pass, Erich stopped directly in front of her and introduced himself before she could pass. It was his characteristic directness that immediately caught her attention. They spent his whole leave at each other's side.

She made it hard to head back to base. He promised to write as often as he could while away and she did the same. Surprisingly, the fact that he had someone to fight for made him try even harder to succeed.

Leo was careful to keep out of trouble. Even after many months of grueling work. He was, however, close to his breaking point. He hadn't heard anything about his family. The lack of news resulted in the slow decline of his confidence. And the lack of confidence made him take risks. Nothing too serious. But then again, what wasn't life threatening in Dachau?

He'd go out of his way to help someone. Or, blatantly talk about the unknown barrack. He even thought of gathering people to fight back. But the frail looking group wouldn't have been successful. He couldn't put others at risk. His own life, however, became less and less important.

One day at roll call his number was the first to be read. He was to report to the unknown barrack immediately. No questions asked. He gathered his composure. It was not the time to break down. His life depended on it.

Two Nazi soldiers carrying guns accompanied him on the short walk. They looked straight ahead. Showed no signs of emotion. He thought about asking them what this was about. It fleetingly crossed his mind that his family was somehow involved. He thought better of stepping out of line and kept his mouth shut.

They led him to a dimly lit, austere room. It was cold and filled with large equipment. Leo could only guess at their uses. He was told to wait as someone was called. No explanation was offered when the man walked in.

Instead he spoke quickly and efficiently. He asked Leo his age and took measurements. Leo didn't know what was happening. One minute he was standing still waiting. The next, he was being forced into some chamber. Strung

up in what looked like gear of some sort. It could have been for aircraft. He wasn't exactly sure. He was told to act normally. The man walked out muttering to himself. Leo couldn't make out all the words. He heard only "high altitude" and "to the limits".

The next thing he realized was how hard it was to breathe.

SCENE 5:

Erich made it his goal, once he was in charge of his own wingmen, to never lose a man. He took great pride in every landing back at the base, during which time all wheels that took off also safely touched down. It was his greatest accomplishment to date, beyond all the medals and awards and any recognition they supplied him, to have not lost a single wingman. It surprised even him to find that this gave him a better sense of accomplishment than the awards and was a testament to the changes war had made to his usual sense of self-importance.

With this goal in mind, he started off 12 December 1943 like any other. He trusted his aircraft to take off and land securely. He cleared his mind of thoughts about what he would write to Adal upon his return. And focused his attention on his aircraft and keeping Guenther Capito safe.

Capito was a former bomber pilot who was making the transition to fighter pilot rather late to avoid being grounded. Despite dissuasion from Erich, he continuously asked to fly as his wingman. Erich finally agreed after a quick briefing on the importance of remaining close to his leader. The air battle was against two Russian aircraft.

Capito received direct warning about the tight turns. They were an integral part of fighter action. Erich let the Russian fighters in close to firing range. He was used to the close contact. It made Capito nervous. Erich called to him to remain near. The Russians fired. Erich broke into them horizontally. It was a very steep turn. Capito lost control. He made a classic bomber turn. It was too wide.

The two Allied planes ended up 180 degrees from each other. Capito found himself on the side of the Russians.

Erich couldn't risk shooting his comrade. For a brief moment he paused. He had to contemplate the proper course of action. His four-method model of attack was broken. It took him a split second to give orders. He told Capito to break and fly away. Erich couldn't react. His plane was shot down by the Red fighter.

He saw the attack in slow motion. The engine failure and dashboard lit up. They warned him to eject immediately. He pushed the button to release himself. Then, shot out of the cockpit. There was no time to check his altitude or surroundings. He had to hope Capito would be safe having heard his last orders to flee back to base.

Leo's chest felt heavy and his breathing slowed. Each rise and fall of his rib cage took more energy than he had. It pained him to gulp at the air. It was harsh and unsatisfying. The thought of coughing held comfort. However, he couldn't manage the force. He made an effort to fill his lungs, but they wouldn't comply. The colors of the room faded. Each moment was more excruciating than the last.

Although no thoughts could form in his mind, a single image appeared with no effort. Had he been capable, an entire scene would have played out. Perhaps his most important moments would have flashed before him. Instead, he saw the face of his wife the moment he met her. With that, he took one final labored breath. The room turned black.

In a letter from SS-Untersturmführer Rascher to Reichsführer-SS Himmler, April 5, 1942 (Trials of War Criminals Before the Nuernberg Military Tribunals - Washington, U.S Govt. Print. Off., 1949-1953, Vol. I, p. 144-147):
Highly esteemed Reich Leader:

Enclosed is an interim report on the low-pressure experiments so far conducted in the concentration camp of Dachau...
Only continuous experiments at altitudes higher than 10.5 Km resulted in death. These experiments showed that breathing stopped after about 30 minutes, while in two cases the electrocardiographically charted action of the heart continued for another 20 minutes.

The third experiment of this type took such an extraordinary course that I called an SS physician of the camp as a witness, since I had worked on these experiments all by myself. It was a continuous experiment without oxygen at a height of 12 Km. conducted on a 37-year old Jew in good general condition. Breathing continued up to 30 minutes. After 4 minutes the experimental subject began to perspire and to wiggle his head, after 5 minutes cramps occurred, between 6 and 10 minutes breathing increased in speed and the experimental subject became unconscious; from 11 to 30 minutes breathing slowed down to three breaths per minute, finally stopping altogether.

Severest cyanosis developed in between and foam appeared at the mouth...

Autopsy report ~~~~~

One hour later after breathing had stopped, the spinal marrow was completely severed and the brain was removed. Thereupon the action of the auricle stopped for 40 seconds. It then renewed its action, coming to a complete standstill 8 minutes later. A heavy subarchnoid oedema was found in the brain. In the veins and arteries of the brain a considerable quantity of air was discovered.

(Jewish Virtual Library)

DISCUSSION:

Many questions result from the Holocaust. It's a difficult historical event to process and requires continuous study. Opinions differ on how to use the information gained, but whether the experiments risking human lives were worth it to the scientific community should also be discussed.

During the Nuremberg Trials, "Vollhardt, a distinguished German scientist asserted, 'that scientifically speaking the planning was excellent.' In response to a question of whether 'these experiments [were] in the interests of aviators and sailors who [had been] shipwrecked,' he stated that 'towards the end of the war there was an increase in the number of pilots shot down as well as of shipwrecked personnel, and it was, therefore, the duty of the hygiene department... to consider the question of how one could best deal with cases of shipwrecked personnel...' He then added, 'one unsuspected [finding of these studies turned out to be] that the drinking of small quantities of sea water, up to 500 cc over a lengthy period, [is] better than unalleviated thirst.' Dr. Vollhardt finally expressed his conviction that the results of these experiments 'were a wonderful thing for all seafaring nations'." (Caplan 1992)

Although the discussion of this piece deals with the high altitude cases, it is a valid point to make that the German scientists asserted that their work was beneficial to the medical and scientific research of the time. The hope is that one-day this novel will be fully realized, but even if that is the case, it will never be enough to discuss the life of every person who suffered. Instead, the lives of the two fictional characters will hopefully inspire others to look further into the

literature and historical documents that compliment the piece. After all, it is from those that care about the subject that it lives on to remind us never to allow such an event to occur again.

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Many thanks to my committee who helped me set the scene, structure the sentences, and bring the characters to life. I couldn't have done it without their help.

Also, this project wouldn't have been possible without financial support from the Lee Honors College to travel to Poland, Germany, and Washington DC using the Lee Honors College Dean's Thesis Summer Study Abroad Scholarship and the Lee Honors College Research Scholarship.