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**TITLE: The German East Africa Campaign of World War I – A Lesson in Isolated  
Ground Force Operations for Future Great Power Conflicts**

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OF THE REQUIREMENTS FOR THE DEGREE OF  
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## Executive Summary

**Title:** The German East Africa Campaign of World War I – A Lesson in Isolated Ground Force Operations for Future Great Power Conflicts

**Author:** Major Anthony J. DeVuono, United States Marine Corps

**Thesis:** The conduct of isolated ground force operations during the German East Africa Campaign of World War I, by General Paul von Lettow-Vorbeck and the *Schutztruppe*, as a conventional military organization, is a model of how to execute distributed operations against a peer adversary during a great power conflict.

**Discussion:** Current technological dependencies place U.S. conventional ground forces in a disadvantageous position, while conducting distributed operations, in a future total war environment against a peer adversary. At all levels of command and across the full spectrum of defense operations, actions, and activities the U.S. military is vulnerable against peer competition due to overdependence on technology. The probability that the U.S. will be able to maintain asymmetric advantages, that are technology-based, during distributed operations in a protracted campaign is unlikely due to adversarial peer capabilities to counter, neutralize, or render ineffective those military advantages. This dilemma places conventional ground forces in a position of increased risk as they will be required to execute distributed ground operations with limited support from the continental U.S. The scenario of a conventional ground force executing a distributed operations campaign against a superior military force while isolated from external support has already played out historically. From 12 August 1914 through 25 November 1918, General Paul von Lettow-Vorbeck and his *Schutztruppe*, comprised of German soldiers and local fighters (askaris), executed one of the greatest military feats in modern history. While World War I raged on the continent of Europe, the *Schutztruppe* was able to successfully wage conventional ground operations against a numerically and logistically superior adversary for four years with no external support from Germany. Considering that the *Schutztruppe* never exceeded a combined force of 15,000 German soldiers, askari fighters, and carriers against an Allied force totaling more than 300,000 over the course of the campaign, and never lost a battle, demands the attention of current military intellectual thought and inquiry. Lessons learned from General Paul von Lettow-Vorbeck in leadership, campaigning in support of strategic objectives, and the conduct of conventional military operations void of external support are a significant advantage to current U.S. military planning against peer competitors. This study seeks to examine the design and execution of the German East Africa Campaign regarding how to wage conventional ground warfare isolated from external support.

**Conclusion:** A ground force that can operate in austere environments with limited technology and requirements for external support is an asymmetric advantage to U.S. national security. During the German East Africa Campaign of World War I, General Paul von Lettow-Vorbeck was able to successfully wage conventional ground warfare isolated from external support. Lessons learned from how the *Schutztruppe* logistically and medically sustained their campaign provide advantages in the conduct of distributed operations against a peer adversary during a great power conflict. Technology is vital for the conduct of future war, but it is not itself an asymmetric advantage. Lettow-Vorbeck, understood during the German East Africa Campaign as military leadership does now, that ground forces must be survivable, not dependent, to win.

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*Table of Contents*

	Page
PREFACE AND ACKNOWLEDGEMENTS.....	i
INTRODUCTION .....	1
TECHNOLOGY DEPENDENCE AND DOCTRINAL DEFICIENCIES	
Technological Dependence .....	3
U.S. Conventional Ground Force Doctrinal Deficiencies .....	7
THE GERMAN EAST AFRICA CAMPAIGN	
Campaign Overview .....	9
The <i>Schutztruppe</i> .....	12
Force Protection and Field Medicine .....	14
Logistics While Isolated from External Support .....	16
CONCLUSION.....	20
NOTES.....	24
BIBLIOGRAPHY.....	26

## *Preface and Acknowledgements*

I began this project with total disbelief in the military accomplishments of General Lettow-Vorbeck and the *Schutztruppe* of German East Africa (GEA). I discovered the Campaign for GEA during personal study of World War I, while assigned to Special Operations Command-Europe. During my time at the command, the dominate topic was Special Forces role during symmetric conflict. I spent three years immersed in various strategy discussions of how to prepare for and wage a conventional ground campaign against peer adversaries. Without fail, the number one factor that senior military planners focused on was force survivability. However, little effort was made to determine what specific tasks must be accomplished prior to the force being isolated. I have devoted much study to Lettow-Vorbeck and the Campaign for German East Africa because it has been the only historical example of a relatively modern conventional ground force that waged a campaign against a peer adversary while isolated from external support of which I am aware. This study is by no means comprehensive, nor does it answer how to make a ground force survivable in a peer conflict.

My sincere appreciation is directed to Dr. Richard DiNardo and LtCol Donald Harlow for their guidance and mentorship during this process. Additional thanks goes to Dr. Tony DeVuono, and Mrs. Cynthia DeVuono for their support in completing this project.

Finally, to my wife Katelin and daughter Adeline, thank you for being my joy and motivation for all things in life.

## **Introduction**

The topic of symmetric warfare permeates the U.S national defense establishment. Terms such as “great power” and “peer/near-peer” conflicts dominate the current discourse of U.S. national security. The discussion of great power conflict is cause for concern to current U.S. military leadership and planners due to understood lack of asymmetric military advantages over potential peer adversaries. The immediate interest is to determine whether the U.S. military has the capability and capacity to compete technologically with a peer/near-peer adversary. U.S. national security and military planners are rightly infatuated with achieving and maintaining asymmetric advantages over strategic adversaries. The ultimate impediment to accomplishing the daunting task of attaining asymmetric advantage nirvana is the continuous, global, and mass-proliferated technological evolution.

The reliance on future technological asymmetric advantages to counter U.S. great power adversaries is alone inadequate. Placing the future security of U.S. national sovereignty in unknown technological advances is a risky strategy. While the current strategy is untenable, the continuous research and development of new technologies are inevitable and each new technological advantage, in time, will be rendered inconsequential to achieving a lasting asymmetric advantage. The inadequacy of future technological advantages is a dilemma that applies to all nation-states. The challenge for military planners is to ensure operational capabilities are not entirely dependent on technology, while simultaneously maintaining a military force that can achieve future national political objectives.

It is a principal requirement that military organizations pursue technological advantages over adversaries. As the primary method of achieving a military victory over national adversaries, future technological advantages to support U.S. ground force operations are

preeminent to ensuring future national political objectives. Current U.S. military leadership is quickly coming to understand that in a future great power conflict environment, the survivability of technological advantages to military ground forces are at risk. For U.S. military ground forces, that implies all warfighting support functions are at risk in a future great power conflict. The risk is that throughout a future great power conflict, current doctrinally essential support functions will not be available to U.S. ground forces due to technological capabilities of a peer/near-peer adversary. Currently, U.S. doctrine assumes that support functions are guaranteed for the duration of a future conflict with a peer adversary. The doctrinal deficiency of assuming that U.S. ground forces will be adequately sustained in a peer conflict has manifested a U.S. military ground force that is not trained or equipped to conduct distributed operations against a peer adversary in a denied environment. The implications of having all or most warfighting support functions unavailable to U.S. conventional ground forces is unacceptable to military leadership.

The dilemma of a conventional military ground force that is required to engage in an armed conflict against a peer adversary without doctrinally essential support functions, or isolated from external support forward in a remote theater of operations, is not unprecedented in recent history. From 3 August 1914 to 25 November 1918, during World War I, in German East Africa (GEA), a conventional military force (the *Schutztruppe*) consisting of approximately 3,000 German soldiers and 12,000 native warriors (askaris) was able to effectively fight a ground campaign against an Allied force totaling more than 300,000.<sup>1</sup> The GEA Campaign was accomplished without external support from the main German force in Europe. The *Schutztruppe*, a conventionally-trained ground force, waged a guerilla campaign against a peer adversary while isolated from all external support functions. The conduct of isolated ground force operations during the German East Africa Campaign of World War I, by General Paul von

Lettow-Vorbeck and the *Schutztruppe*, as a conventional military organization, is a model of how to execute distributed operations against a peer adversary during a great power conflict. The experience of the *Schutztruppe* in the GEA campaign provides an excellent example for US forces that might have to operate in isolation, without technological advantages, during a peer conflict.

### **Technology Dependence and Doctrinal Deficiencies**

#### **Technological Dependence**

The 2017 National Security Strategy refers to the idea of maintaining technological advantages over United States strategic competitors approximately 25 times.<sup>2</sup> It is evident that current U.S. national security leadership conclude that technology is the asymmetric advantage of future war. While maintaining technological advantages is undoubtedly vital to national security interests of the U.S., it is unknowingly placing our military in a disadvantageous position. “Capabilities create dependencies, and dependencies create vulnerabilities.”<sup>3</sup> At all levels of command and across the full spectrum of defense operations, actions, and activities the U.S. military is vulnerable against peer competition due to overdependence on technology. The current path laid out in the 2017 National Security Strategy is disadvantageous to military readiness and U.S. national security.

The United States relies too heavily on technology in the conduct of distributed operations and the employment of military force. Since the end of World War II, the United States has maintained significant technological and resource advantages over all other industrialized states. While these advantages have allowed the U.S. military to maintain high levels of operational capability for political leaders, they have become detrimental to future

readiness. These technological advantages are directly focused on increased lethality rather than friendly force survivability. A survivable United States ground force must be equipped and trained to execute distributed operations, in complete austerity, without external technological or material support. There are no guarantees of the survivability of these technological advantages, and our ground forces may not have access to these technologies for the duration of a peer conflict. Relying solely on future advancements in technology, to conduct distributed operations against a peer adversary is detrimental to United States national security. While these technological advancements have their place in overall force preparedness, military readiness should be focused on the protection of the force through increased survivability to sustain a peer conflict with enough duration to achieve military victory.

U.S. political leadership require that military ground forces are prepared for any potential threat environment. The National Security Strategy states that "U.S. advantages are shrinking as rival states build up their conventional and nuclear forces."<sup>4</sup> The fact that technology is the United States' primary asymmetric advantage against peer competitors and, at the same time, U.S. advantages are shrinking as these peer competitors build their conventional forces is disconcerting. It is apparent that the U.S. military is vulnerable against peer competition due to an overdependence on technology which is placing U.S. military ground forces and, in turn the overall national security of the U.S. in a disadvantageous position. United States conventional ground forces are not equipped and trained to conduct distributed operations against a peer adversary due to an overdependence on technology and training deficiencies in the survivability of the force. Modern military academic research and U.S. ground forces training doctrine demonstrate the extent of military technological dependency and the lack of overall survivability readiness of ground forces during distributed operations against a peer adversary.

United States conventional ground forces are not equipped and trained to execute distributed operations against a peer adversary due to an overdependence on technology. U.S. ground forces are entirely dependent on technology at all levels of the force. “U.S. capabilities rest on a robust communications network as well as cyber and electronic systems. Space-based systems for a vast array of intelligence functions, communications, the accuracy of munitions, targeting, and even the movement of combat vehicles.”<sup>5</sup> Three main topics should concern our national security leaders regarding technology and its dominance over how current U.S. ground forces are equipped and trained. One, technology is exponentially evolving at revolutionary pace; two, the civilian sector is responsible for the preponderance of new globally available technologies; and three, that United States ground forces are solely dependent on technology for the most rudimentary organizational tasks. By examining each of these topics a better understanding of how U.S. ground forces are not equipped and trained to conduct distributed operations against a peer adversary due to an overdependence on technology will emerge. A better understanding of critical vulnerabilities is vital to U.S. national security interests.

Technology is exponentially evolving at a revolutionary pace, which does not allow for any military to solely depend on technology for an asymmetric advantage. The rate of technological evolution is near impossible to comprehend due to the sheer depth and breadth of the technology spectrum on a global scale. Advancements and evolutionary change in one area of technological development could enable many other fields to undergo revolutionary changes. The combination of sequential and parallel development in the multitude of technological domains and fields leaves the concept of attaining a military technological asymmetric advantage in question. The speed of computing development alone is enough to limit any idea of military advantage. “It is entirely possible that the ongoing rapid pace of computer innovation may make

the next two decades more revolutionary than the last two.”<sup>6</sup> Considering technology developments in the past two decades, the next two decades of technology evolution will be even greater, and the U.S. military is required to obtain and maintain asymmetric advantages in all fields of technology. The continued expansion of global technological proliferation combined with the revolutionary pace of technology development continues to erode the notion of U.S. military asymmetric advantage against peer adversaries.

The civilian sector is responsible for the preponderance of new technologies, which makes them globally available. While having the preponderance of new technologies develop outside government channels is healthy for the pace of overall global development and the betterment of society at large, the second and third order impacts are alarmingly unknown. The U.S. Department of Defense still focuses a significant amount of resources to develop niche capabilities, but the overall share of new technologies genesis from the civilian sector. “The big concern is that these technologies may create autonomous weapon systems that can make choices...independently of those who created or deployed them. Such technologies are being developed around the globe, most of them in the civil sector, so they are bound to proliferate.”<sup>7</sup> Attaining military ground force asymmetric advantages in a global environment where the preponderance of new technologies come from private entities that are globally proliferated is an impossible undertaking. This uncertainty places U.S. national security at risk not just from peer adversaries, but adversaries with less overall capacity and capability as well. “Access to technology empowers and emboldens otherwise weak states.”<sup>8</sup> The current state of global technological development and proliferation leaves a U.S. military ground force that is overdependent on technology for asymmetric advantages in a high state of risk.

United States ground forces are solely dependent on technology for the most rudimentary organizational tasks. From senior military operational commanders to the smallest formations, the ground forces of the U.S. military are steeped in technology dependence. These ground forces are inextricably tied to current technologies for administrative requirements, intelligence functions, blue-force tracking, communications, fires, targeting, and logistics in order to achieve tactical and operational military objectives. These requirements are just the tip of the iceberg for what current U.S. military ground forces require from technology for the conduct of distributed operations. A significant portion of these battlefield requirements depends on a robust and redundant communications architecture that U.S. ground forces rely upon for numerous warfighting functions. “We cannot (and will not) go to war without satellite communications (SATCOM), global positioning system (GPS), or space-based imagery.”<sup>9</sup> Current U.S. ground force dependency on technology for the most basic functions of military operations is a critical vulnerability to U.S. national security. The overdependence on technology inhibits the survivability of U.S. military ground forces during distributed operations against a peer adversary.

#### U.S. Conventional Ground Force Doctrinal Deficiencies

United States tactical level ground force training and operational doctrine focus on lethality rather than survivability. While lethality has a rightful position at the top of priorities of tactical-level infantry doctrine, in preparing for future war survivability of the force will be vital to mission success. The current doctrinal mission statement of the U.S. Marine Corps Infantry Battalion is unambiguous in its lethality focus. “The mission of the Marine infantry battalion is to locate, close with, and destroy the enemy by fire and maneuver, or to repel his assault by fire and close combat.”<sup>10</sup> Force survivability must be elevated in the developmental priority of U.S.

infantry doctrine. U.S. forces must be able first to survive the myriad of technological advances in military capability they will incur on the future war battlefield. The force that can survive the duration of the conflict will then be able to achieve an appropriate decisive victory through lethal military action. A survivable ground force is an asymmetric advantage that must be developed and exploited by the U.S. military to fulfill national security objectives.

United States ground forces are not equipped and trained to sustain operations in austere environments without extensive external support. Current tactical-level infantry doctrine is clear of the limited duration of ground forces to engage in full-scale kinetic battle. U.S. ground forces are entirely dependent on external sustainment to achieve their military objectives. “In order to shoot, ammunition is needed. Fuel and repair parts are needed for movement, and batteries are needed to communicate. To survive, the Soldier needs food and water. Soldiers and leaders need to forecast requirements before they need them.”<sup>11</sup> These essential supply and logistical necessities are required for military ground forces. The asymmetric advantage is being able to lighten, reduce in size, increase potency, and decrease dependency on these supply and logistical requirements. There is reason to conclude that technology will play a vital role in the future of equipping and training U.S. ground forces to reduce the significant requirement for external support. A ground force that operates in austere environments with limited requirements for external support is an asymmetric advantage to U.S. national security. Just over 100 years ago, a conventional ground force found itself vastly outnumbered and isolated from all external support and managed to sustain their operations for four years without losing a battle. The GEA Campaign is a model of how to conduct an isolated ground campaign against a peer adversary during a great power conflict.

## The German East Africa Campaign

### Campaign Overview

Though vastly outnumbered by British, South African, Belgian, and Portuguese armies, Lettow-Vorbeck and the *Schutztruppe* were able to successfully wage a ground campaign isolated from mainland Germany from 3 August 1914 to 25 November 1918, during World War I in GEA. With 216 German officers and 2,450 askaris, the *Schutztruppe* defended a territory larger than Germany and France combined, and with antiquated weaponry.<sup>12</sup> Accepting his limited manpower and resources, Lettow-Vorbeck brilliantly made his overall military objective for the GEA campaign to detain the enemy in Africa, drawing Allied resources from the European theater.<sup>13</sup> He hoped that the efforts of the *Schutztruppe* in GEA would be able to relieve pressure on the German Army in Europe.<sup>14</sup>

There were two significant challenges that Lettow-Vorbeck and the *Schutztruppe* had to overcome to accomplish their military objective. First, in the event of war, the colony would be effectively cut off from any outside help.<sup>15</sup> German communications, logistics, and all other forms of warfighting support functions were either intercepted or denied by the British.<sup>16</sup> And second, due to the loss of external support, the *Schutztruppe* were required to, “live off a country which offers no apparent sustenance, run in conditions when most men barely have the strength to walk, condition the body to go without food or water, and most important of all, become so much a part, so absorbed into an unfriendly wilderness that survival is possible as the snakes and land crabs and lizards survive.”<sup>17</sup> The environment was formidable to anyone that did not fully embrace and respect living in tropical Africa. It was also vital to appreciate the local wildlife and especially important to ensure communication lines were installed above the heads of passing giraffes.<sup>18</sup> There were many planning considerations to be addressed for both the environment

and enemy by Lettow-Vorbeck that enabled the *Schutztruppe* to be an effective conventional ground force while isolated from external support, but the beginning of the campaign was almost its conclusion.

After defeating an amphibious landing by the British Indian Expeditionary Force at the town of Tanga, in November 1914, the *Schutztruppe* established a foothold in the region surrounding Mount Kilimanjaro. Lettow-Vorbeck made his tactical objective operations against the British Uganda Railway.<sup>19</sup> To Lettow-Vorbeck, the pride of British Imperialism resembled a long, exposed jugular vein that might be served with fatal consequences anywhere along its 700-mile length.<sup>20</sup> The town of Jasin became the focus of attention to Lettow-Vorbeck as a possible decisive victory over the preponderance of British forces defending the Southern border of British East Africa along the route of the British Uganda Railway to Mombasa. In January 1915, Lettow-Vorbeck was successful in capturing the British garrison at Jasin, but at a high cost to the *Schutztruppe*. “The victory at Jasin could only be called pyrrhic.”<sup>21</sup> Lettow-Vorbeck made a costly error at Jasin, but instinctively understood that if he was going to be successful at achieving his military objective of detaining British forces in Africa he could not risk his small, elite force to destroy every British garrison along the Uganda Railway. The conventional war for Lettow-Vorbeck ended at Jasin. The guerilla war for GEA had begun.<sup>22</sup>

The constant endeavor for the *Schutztruppe* was to injure the enemy, to force him to adopt protective measures, and thus contain his forces in the district of the Uganda Railway.<sup>23</sup> The environment and terrain made the Uganda Railway extremely difficult to protect.<sup>24</sup> By reducing the size of the *Schutztruppe* units, Lettow-Vorbeck was able to use speed and maneuver to provide his tactical commanders flexibility as they carried out their attacks. Anything larger than a company operating independently in the terrain of GEA, would bring great difficulty and

friction.<sup>25</sup> Lettow-Vorbeck placed a significant amount of trust and authority in his subordinate commanders. To Lettow-Vorbeck, there was an overwhelming value of independence and self-reliance in battle.<sup>26</sup> No matter the circumstances, the *Schutztruppe* were not to be decisively engaged unless victory was certain, as even fifty casualties were considered heavy losses.<sup>27</sup> The advantage, however, in the *Schutztruppe*'s position of being able to employ strong troops and often defeat decisively superior enemy forces, was so great that Lettow-Vorbeck held to this system as long as it was at all possible.<sup>28</sup>

By July 1915, of Germany's prewar colonial possessions, only GEA remained.<sup>29</sup> The *Schutztruppe* successfully waged their operations against the British Uganda Railway through 1915. In early 1916, Lettow-Vorbeck was forced to move most of his operations into the heart of GEA as the British massed an expeditionary force to destroy the *Schutztruppe*. This part of the campaign is where the brilliance of Lettow-Vorbeck's planning and preparations to wage an isolated ground campaign against a superior force come to fruition. Early preparatory efforts in both medical and supply provided Lettow-Vorbeck and the *Schutztruppe* operational flexibility to maneuver throughout GEA and use the environment and terrain to their advantage over the attacking British expeditionary force. In September 1918, two months before the armistice was signed, the *Schutztruppe* still comprised 175 officers, 1,500 askaris, and 2,000 carriers with ample supplies and munitions.<sup>30</sup> Given the superior adversarial force and the daunting environment, Lettow-Vorbeck managed to instill such unit cohesion and fighting spirit among his men under the most difficult circumstances that this has been called one of the major command achievements of the First World War.<sup>31</sup> The campaign for GEA, waged for over four years by the German *Schutztruppe*, is a model for how to achieve an asymmetric advantage during distributed operations against a peer adversary.

## The *Schutztruppe*

Comprised of both German and askari soldiers, the *Schutztruppe* was a professional military force, proud of their vocation and often sons of soldiers.<sup>32</sup> The unique nature of the *Schutztruppe* lies in their adaptation of conventional warfare tactics to the unique environment of GEA. The *Schutztruppe* went so far as to write their own manual based on experiences against local insurgents.<sup>33</sup> When Lettow-Vorbeck took command of the *Schutztruppe*, he found himself in a unit that fit his military mindset, as Lettow-Vorbeck's mind was not conventional in any sense.<sup>34</sup> The immediate impact to the overall organization of the force was the primary importance that Lettow-Vorbeck placed on military competence and merit-based promotions, as Lettow-Vorbeck created modern history's first racially-integrated army.<sup>35</sup> The implications of this decision were that the *Schutztruppe*, an already capable fighting force, was immediately instilled with devotion and resolve to their new commander. Lettow-Vorbeck had learned during previous campaigns, specifically in German Southwest Africa, that in battle, numbers don't matter as much as resolve.<sup>36</sup> As the *Schutztruppe* was fighting a superior conventional military force with no technological advantages while isolated from mainland Germany, the resolve of the *Schutztruppe* would have to be unwavering for the duration of the conflict. Much of their confidence also came from a superior understanding of the GEA environment.

Lettow-Vorbeck and the *Schutztruppe* excelled at battlespace knowledge of GEA to include both geographical understanding and climate effects. The primary strength of the *Schutztruppe* was not force of arms, but knowledge of the country and material support from the population.<sup>37</sup> This required continuous detailed reconnaissance.<sup>38</sup> Lettow-Vorbeck himself conducted detailed reconnaissance and supplemented reports by personal observation throughout

the campaign.<sup>39</sup> Before the war began, between January and July 1914, he traveled more than 1,000 miles around GEA.<sup>40</sup> The effort to understand the GEA environment meant a significant undertaking to ensure the accuracy of maps.<sup>41</sup> Most importantly was where the main sources of water existed throughout the annual climate cycles of GEA.<sup>42</sup> Lettow-Vorbeck personally immersed himself knowing the environment, “I devoted every minute to the study of maps and travel-descriptions, burying myself in them at every halt in the march.”<sup>43</sup> Lettow-Vorbeck understood that by knowing the environment better than his adversary, he would be able to inflict greater casualties on the British by choosing engagement areas that would benefit the *Schutztruppe*. Allowing the treacherous GEA environment to be an advantage was a *Schutztruppe* standard operating procedure. Lettow-Vorbeck went wherever the British Army, chasing him in earnest, found it hard to follow.<sup>44</sup>

Mobility was essential to the successful GEA campaign of the *Schutztruppe*. Lettow-Vorbeck divided his already small, mobile, racially mixed field companies into smaller patrols of twelve to thirty men, with the latter bearing one or two machine guns. These were in turn divided into detachments of eight to ten.<sup>45</sup> With smaller, more mobile units the *Schutztruppe* was able to use speed and careful selection of engagement zones to inflict as many casualties on their adversary as possible without becoming decisively engaged. Even retreat with minimal losses was counted a success.<sup>46</sup>

*Schutztruppe* soldiers were considerable hunters and were able to keep their bearings in an unknown wilderness by using the sun to find the way.<sup>47</sup> By maintaining a small, mobile, lethal force, the *Schutztruppe* preferred and usually attempted to have their adversaries pursue them as it was assessed that their opponents were not equal to a long march, and therefore would be battle exhausted and unfit for further operations.<sup>48</sup> The *Schutztruppe* readily understood that

pursuit could be a prelude to ambush and used this tactic to their advantage during countless engagements with their adversary.<sup>49</sup> In essence, “fighting the *Schutztruppe* would be like “beating a bean bag chair with a baseball bat.”<sup>50</sup> Though both numerically and logistically inferior, the tactics employed by the *Schutztruppe* are a model for a conventional ground force to execute a campaign while isolated from external support.

### Force Protection and Field Medicine

Preventative medicine ensured survivability of the force, during the Campaign for GEA, while the *Schutztruppe* were isolated from external support. Lettow-Vorbeck highly valued medical personnel and planning as a force protection requirement within the *Schutztruppe*. With no ability to request reinforcements, Lettow-Vorbeck could not replace professional soldiers and officers.<sup>51</sup> The German Army was already known for its highly professional and capable medical staff, “wounded Englishmen begged to be treated by a German doctor.”<sup>52</sup>

The *Schutztruppe* also benefitted from ongoing agricultural research in GEA that was occurring before the outbreak of World War I. Various biological and agricultural research centers had been established in GEA at the beginning of the century, not long after the founding of GEA. The Amani Institute, founded in 1902 in GEA, was the primary research facility. At the Amani research labs, German scientists, indispensable to Lettow-Vorbeck’s war effort, were still hard at work devising a miraculous variety of substitute medications and other necessities impossible to obtain because of the blockade.<sup>53</sup> The benefit to the *Schutztruppe* was immeasurable as the knowledge these German scientists and medical personnel gained from local experimentation and research enabled the *Schutztruppe* to continue their campaign without regular medical support from mainland Germany. Field and preventative medicine enabled the *Schutztruppe* to execute the GEA campaign successfully. Without the knowledge and support of

the local agricultural and medical research, and the preventative measures undertaken by the *Schutztruppe*, the GEA campaign would not have been successful.

The tropical African environment is extreme. With the addition of climate effects, the environment in East Africa is a deadly place to wage a great power conflict even before munitions are expended. The *Schutztruppe* took advantage of the environment to expose their adversaries, that had just recently arrived in GEA, by purposely moving to regions that would be of high health risks to the British troops. “They (the *Schutztruppe*) had let the country itself do most of their fighting for them.”<sup>54</sup> The spread of disease and viruses by indigenous insects and other wildlife is certain in tropical Africa. Specifically, dysentery and typhus – the scourge of all premodern armies.<sup>55</sup> Heavy periods of rain are cyclical and provided a significant impact in aiding the spread of both insects and the diseases they carried.

The *Schutztruppe* were able to keep these potential health impacts at a manageable level by acclimatizing to the various annual micro-environments within GEA, and the German doctors proved highly skillful in adapting to the specific needs of the German and askari soldiers in tropical Africa. “German staff-surgeons successfully performed even serious operations, including several for appendicitis.”<sup>56</sup> German field medical care, planning, and agricultural research sustained and enabled the *Schutztruppe* to successfully carryout the GEA campaign for the duration of World War I. The German medical efforts during the GEA campaign are a model for conventional military ground forces to wage a peer conflict while isolated from external support. A significant piece of the *Schutztruppe* overall medical success was preventative measures.

Medical prevention was of utmost importance to Lettow-Vorbeck and the *Schutztruppe*. Doctors, deprived of medicines and forced to create dressings from plants came to see prevention

rather than intervention as the best cure.<sup>57</sup> Most important, quinine, without which life in the tropics was impossible for Europeans.<sup>58</sup> Liquid quinine was produced by boiling Peruvian bark.<sup>59</sup> Also, the *Schutztruppe* used a traditional German beverage for more than usual purposes. “Liquid-borne microbes generally cannot survive in the frothy, acidic medium of a good lager.”<sup>60</sup> While agricultural remedies and malted beverages from GEA aided in preventative measures, the *Schutztruppe* also dressed appropriately to lower the chances of exposure to local insects. Part of this German resistance to disease must be attributed to the simple matter of uniforms. The Germans exposed less of their skin to noxious insect bites than the British.<sup>61</sup> The *Schutztruppe* wore long-sleeves and pants while they were in areas where disease-prevalent insects were known. The *Schutztruppe* were required to make every effort to sustain themselves and prevent unnecessary death from exposure to the local environment. The preventative medical measures taken by the *Schutztruppe* during the GEA campaign are a model for isolated conventional ground forces conducting distributed operations against a peer adversary.

### Logistics While Isolated from External Support

The logistical prowess and vision of Lettow-Vorbeck to plan and execute support requirements, while isolated from mainland Germany, for the duration of World War I in GEA were remarkable. Even before the outbreak of hostilities in Europe, Lettow-Vorbeck began logistical preparations to support the *Schutztruppe* without support from outside GEA. The high priority of logistics planning in the *Schutztruppe* was essential due to the terrain, environment, and climate considerations of operating a conventional military ground force in GEA. “The requirements to supply a company in Africa was the same as a division in Europe.”<sup>62</sup> Lettow-Vorbeck understood that if he was going to be able to fight the Allies for an extended period

then, “it was necessary to lose no time in putting under the cultivation the territory we were then occupying.”<sup>63</sup> To accomplish the task of long-term sustainment of the force, Lettow-Vorbeck had seeded the region with supply dumps before the war and had ordered the planting of thousands of acres of maize.<sup>64</sup> He ordered supply dumps hidden in out-of-the-way spots.<sup>65</sup> To Lettow-Vorbeck, “more dangerous than the enemy seemed to me the material position of our men.”<sup>66</sup> The long-term efforts made to plan the supply of the *Schutztruppe* allowed Lettow-Vorbeck the flexibility to use the entirety of GEA to his advantage. Facing a superior-sized force, the resupply options the *Schutztruppe* gave themselves early in the campaign allowed them to stay mobile and to choose engagement areas that favored their ability to supply the various battles. While the resupply planning and preparations provided options for the *Schutztruppe*, foraging and local procurement aided by the numerous *Schutztruppe* and askari native attendants was vital to overall sustainment of the force.

The capability of the *Schutztruppe* to sustain their force for the duration of the campaign took many routes to success. In simple terms, the entirety of the *Schutztruppe* became modern natives of the land. In one instance, some members of the *Schutztruppe* saved themselves from starvation by killing an elephant.<sup>67</sup> The *Schutztruppe* became ample big game hunters. “Hippopotamus shooting became a question of existence.”<sup>68</sup> Big game hunting required a significant undertaking to be creative and appreciative of every opportunity a hunt could provide. The resourcefulness of the *Schutztruppe* was shown even with smaller game; to be able to kill an antelope and make a boot, or at any rate repair one, from his skin a few days later, without the help of any of the tools of civilization.<sup>69</sup>

Everything the *Schutztruppe* needed to sustain the campaign was garnered from the land. “The country provided more than one would likely find anywhere in Europe.”<sup>70</sup> Soap came from

a combination of animal fat and coconut oil.<sup>71</sup> Rope woven from pineapple fiber proved both durable and less susceptible to rot than hempen rope from Germany.<sup>72</sup> The important question of salt was very simply solved by the troops at Kilwa, by the evaporation of sea-water.<sup>73</sup> Bark provided excellent material for bandages.<sup>74</sup> Candles materialized from tallow; rubber from tapped trees: carefully dripped along rope, the raw milky stuff was then hand-kneaded into tires.<sup>75</sup> Homemade gasoline called Trebol powered vehicles – it was a by-product of distillates of copra, which also yielded benzene and paraffin.<sup>76</sup> Water remained the single most pressing need.<sup>77</sup> Coconut water was an excellent source of hydration.<sup>78</sup> When supplies dried up, Lettow-Vorbeck advised them to drink their own urine or the blood of snared birds.<sup>79</sup> The operation of an isolated conventional military force utilizing guerilla tactics mandated full understanding and utilization of all resources available from the local environment. The *Schutztruppe* excelled at being self-supporting and were open to detailed understanding of their environment from the native population throughout the campaign.

The *Schutztruppe* utilized native attendants throughout the war. The native population was supportive of the *Schutztruppe* and provided necessary manpower and support functions before and during the GEA campaign. “The natives knew the German troops and were very friendly.”<sup>80</sup> The friendly demeanor towards the *Schutztruppe* can be attributed personally to Lettow-Vorbeck during the campaign, as his leadership, demeanor, and social ideas were contagious to both askaris and the native population. Lettow-Vorbeck stated, “The better man will always outwit the inferior, and the color of his skin does not matter.”<sup>81</sup> While the Germans adhered to their financial obligations to their native attendants to the best possible extent, during the later portion of the campaign, “pay was years overdue. Certificates were issued.”<sup>82</sup>

The loyalty of the native attendants during times of severe strife for the *Schutztruppe* speaks to the overall command climate created by Lettow-Vorbeck and his understanding of the vital role the native attendants had in sustaining the campaign. Native attendants facilitated environmental and climate information, movement of logistics, hunting, cooking, and maintenance of temporary patrol camps. Both German professional soldiers and askaris in the *Schutztruppe* utilized native attendants for support. “The gun can only be fired with the help of two cooks and a servant.”<sup>83</sup> While four to five native attendants were standard in the *Schutztruppe*, there were times when Lettow-Vorbeck had to reduce the support due for operational considerations. “No European should have more than five native attendants. I was in a position, when appealed to on grounds of health and decency, to point to the fact that I myself had for months managed with three, or in a pinch two.”<sup>84</sup> While Lettow-Vorbeck had forged the *Schutztruppe* into a highly efficient mobile fighting force, aggressive and completely self-supporting, the native attendants were mission essential to the overall logistic support and success of the GEA campaign.<sup>85</sup>

Before hostilities in Europe erupted, Lettow-Vorbeck began logistical planning and preparations to support the *Schutztruppe* for the GEA campaign. His vision and understanding of the necessary actions that would eventually provide him operational flexibility later in the campaign are worthy of additional study. Of primary importance is the effectiveness of clarity of vision and the importance of making long-term decisions that will provide opportunities for success. For Lettow-Vorbeck, “there is almost always a way out, even of an apparently hopeless position, if the leader makes his mind up to face the risks.”<sup>86</sup>

One of the more critical command decisions that Lettow-Vorbeck made during the campaign was regarding arms and munitions. For the majority of the campaign, the Jagerbuch 71

was the primary individual weapon system of the *Schutztruppe*. When a raid on a Portuguese weapons cache yielded a stock that Lettow-Vorbeck felt could sustain the *Schutztruppe* for a greater duration than his supply of Jagerbuch 71s and appropriate munitions, the decision was made to transition the *Schutztruppe* entirely to Portuguese and English rifles. “They acquired 444 brand-new Portuguese and English rifles, 350,000 rounds of ammunition – enough to discard the last remaining much-reviled but much-loved Jagerbuch 71s.”<sup>87</sup> This type of decision could not have come easily, and it clearly shows the lengths that Lettow-Vorbeck and the *Schutztruppe* would go to sustain the campaign. Lettow-Vorbeck clearly understood that to maintain his isolated ground force, all possible support opportunities should be considered for their long-term benefit to the campaign for GEA. Lettow-Vorbeck understood that without prioritizing the support and welfare of the *Schutztruppe*, he would lose their moral to fight. “It was important for me to maintain the morale of our troops unconditionally if I was to be able to appeal to their sense of honor and make calls on their endurance.”<sup>88</sup> Long-term logistical planning ensured the *Schutztruppe* were survivable while isolated from external support.

### **Conclusion**

While technology provides significant advantages to wage war, it is alone inadequate to achieve victory in future war. At all levels of command and across the full spectrum of defense operations, actions, and activities the U.S. military is vulnerable against peer competition due to overdependence on technology. All technological advantages are at risk during distributed operations against peer adversaries. U.S. military conventional ground forces must be able to survive, attain advantages against a peer adversary, and achieve military victory while isolated from current global military support mechanisms. Currently, United States conventional ground

forces are not equipped and trained to conduct distributed operations against a peer adversary due to an overdependence on technology and training deficiencies in the survivability of the force. The doctrinal deficiency of assuming that U.S. ground forces will be adequately sustained in a peer conflict has manifested a U.S. military ground force that is not trained or equipped to compete with a peer adversary in a denied environment. U.S. Marine Corps expeditionary doctrine makes the technology-dependent nature of military thought clearly understood. "Future technology and mobility enhancements will allow the Marine Corps to execute ship-to-objective maneuver."<sup>89</sup>

For the ground forces of the U.S. military to be victorious in distributed operations against a peer adversary it is essential to equip and train the force to be able to survive, fight, and achieve operational success without sole dependency on an advanced technology that has yet to be developed. U.S. ground force doctrine must be revised to include force survivability as a primary task of tactical-level units. Service-level leadership must prioritize the conduct of operational-level warfare without the necessity of the global communications architecture, global positioning systems, and logistical support mechanisms that originate from the continental United States. Even minor advances to de-emphasize technology dependence for tactical-level ground military forces will provide immediate substantial improvements to the overall national security of the United States. The current challenge for military planners is to ensure operational capabilities are not solely dependent on technology while simultaneously maintaining a military force that can achieve national political objectives. A ground force that can operate in austere environments with limited technology and requirements for external support is an asymmetric advantage to U.S. national security. A model of how to conduct a conventional ground force

campaign while isolated from external support is the German East Africa Campaign during World War I.

The dilemma of a conventional military ground force that is required to engage in an armed conflict against a peer adversary without doctrinally essential support functions or isolated from external support forward in a remote theater of operations is not unprecedented in recent history. The military record of Lettow-Vorbeck and the *Schutztruppe*, during the German East Africa Campaign in World War II, remains one of the most astonishing in modern warfare: By the Commander's count, his little army – at its greatest strength no more than 15,000, had fought off, defeated, or confounded Allied forces totaling more than 300,000 led by 137 generals. They inflicted casualties many times their own number, marched 10,000 miles on foot through impossible rugged country, and had always managed to keep the respect of their enemy by fighting.<sup>90</sup> There is much further study required of Lettow-Vorbeck and the *Schutztruppe* during their campaign for GEA in World War I. The fact that this isolated unit of conventionally trained soldiers were able to adopt guerilla tactics to not only survive in the deep tropical environment of Africa, but to wage war for four years against a superior-sized force that was continuously supported, is nearly incomprehensible.

The logistical and medical planning of the *Schutztruppe* warrant further study. The *Schutztruppe* were successful due to their survivability. Logistical and medical preparations prior to conflict provided the *Schutztruppe* opportunities throughout the campaign. These preparations were done before they became isolated from mainland Germany. Lettow-Vorbeck understood that his greatest weapon was the individual soldier. Ensuring the survivability of his men facilitated the successful campaign. The *Schutztruppe* were a lethal fighting force, but more

importantly, they were more survivable. The study of the Campaign for German East Africa is relevant for the planning of distributed operations during future great power conflicts.

The conduct of isolated ground force operations during the German East Africa Campaign of World War I, by General Paul von Lettow-Vorbeck and the *Schutztruppe*, as a conventional military organization, is a model of how to conduct a ground campaign against a peer adversary during a great power conflict. Technology is vital for the conduct of future war, but it is not itself an asymmetric advantage. Like Lettow-Vorbeck in the beginning of 1914, the planning and preparation time is now for future war. Lettow-Vorbeck understood during the German East Africa Campaign, as military leadership does now, that ground forces must be survivable, not dependent, to win. There is no greater historical resource for how to sustain and fight an isolated great power conflict than the study of the *Schutztruppe* in their campaign for German East Africa.

## Notes

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- <sup>1</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, (New York: Penguin Random House, 2017), 400.
- <sup>2</sup> The White House, *The National Security Strategy of the United States of America* (Washington, DC, 2017), <https://www.whitehouse.gov/articles/new-national-security-strategy-new-era/>.
- <sup>3</sup> Williamson Murray, "Technology and the Future of War," *Defining Ideas, A Hoover Institution Journal* (2017): <https://www.hoover.org/research/technology-and-future-war>.
- <sup>4</sup> The White House, *The National Security Strategy of the United States of America*, 3.
- <sup>5</sup> Murray, "Technology and the Future of War."
- <sup>6</sup> Michael E. O'Hanlon, "Forecasting Change in Military Technology, 2020-2040," *Brookings Institution Report* (2018): <https://www.brookings.edu/research/forecasting-change-in-military-technology-2020-2040>.
- <sup>7</sup> Matthew Symonds, "The Future of War," *The Economist* (2018): <https://www.economist.com/special-report/2018/01/25/the-future-of-war>.
- <sup>8</sup> The White House, *The National Security Strategy of the United States of America*, 3.
- <sup>9</sup> Murray, "Technology and the Future of War."
- <sup>10</sup> Headquarters US Marine Corps, *Marine Infantry Battalion*, MCTP 3-10A (Washington, DC: Headquarters US Marine Corps, May 2, 2016), 13.
- <sup>11</sup> Headquarters US Army, *The Infantry Rifle Platoon and Squad*, FM 3-21.8 (Washington, DC: Headquarters US Army, March 2007), 1-9.
- <sup>12</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 137.
- <sup>13</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, (Nashville, TN: Battery Classics, 1987), 18.
- <sup>14</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 4.
- <sup>15</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 137.
- <sup>16</sup> *Ibid.*, 149.
- <sup>17</sup> *Ibid.*, 101.
- <sup>18</sup> *Ibid.*, 303.
- <sup>19</sup> *Ibid.*, 219.
- <sup>20</sup> *Ibid.*, 239.
- <sup>21</sup> *Ibid.*, 235.
- <sup>22</sup> *Ibid.*, 236.
- <sup>23</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 77.
- <sup>24</sup> *Ibid.*, 4.
- <sup>25</sup> *Ibid.*, 9.
- <sup>26</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 33.
- <sup>27</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 137.
- <sup>28</sup> *Ibid.*, 222.
- <sup>29</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 20.
- <sup>30</sup> *Ibid.*, 400.
- <sup>31</sup> *Ibid.*, 398.
- <sup>32</sup> Hew Strachan, *The First World War in Africa*, (Oxford: Oxford University Press, 2004), 103.
- <sup>33</sup> Hew Strachan, *The First World War in Africa*, 104.
- <sup>34</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 301.
- <sup>35</sup> *Ibid.*, 222.
- <sup>36</sup> *Ibid.*, 189.
- <sup>37</sup> Hew Strachan, *The First World War in Africa*, 95.
- <sup>38</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 167.
- <sup>39</sup> *Ibid.*, 123.
- <sup>40</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 143.
- <sup>41</sup> Hew Strachan, *The First World War in Africa*, 12.
- <sup>42</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 80.
- <sup>43</sup> *Ibid.*, 312.

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- <sup>44</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 392.
- <sup>45</sup> *Ibid.*, 239.
- <sup>46</sup> Hew Strachan, *The First World War in Africa*, 104.
- <sup>47</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 86.
- <sup>48</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 172.
- <sup>49</sup> Hew Strachan, *The First World War in Africa*, 104.
- <sup>50</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 301.
- <sup>51</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 63.
- <sup>52</sup> *Ibid.*, 155.
- <sup>53</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 335.
- <sup>54</sup> *Ibid.*, 326.
- <sup>55</sup> *Ibid.*, 85.
- <sup>56</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 196.
- <sup>57</sup> Hew Strachan, *The First World War in Africa*, 124.
- <sup>58</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 223.
- <sup>59</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 195.
- <sup>60</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 320.
- <sup>61</sup> *Ibid.*, 320.
- <sup>62</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 30.
- <sup>63</sup> *Ibid.*, 175.
- <sup>64</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 339.
- <sup>65</sup> *Ibid.*, 143.
- <sup>66</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 193.
- <sup>67</sup> *Ibid.*, 65.
- <sup>68</sup> *Ibid.*, 160.
- <sup>69</sup> *Ibid.*, 194.
- <sup>70</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 219.
- <sup>71</sup> *Ibid.*, 224.
- <sup>72</sup> *Ibid.*, 224.
- <sup>73</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 194.
- <sup>74</sup> *Ibid.*, 195.
- <sup>75</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 223.
- <sup>76</sup> *Ibid.*, 224.
- <sup>77</sup> *Ibid.*, 242.
- <sup>78</sup> *Ibid.*, 195.
- <sup>79</sup> *Ibid.*, 242.
- <sup>80</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 261.
- <sup>81</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 2.
- <sup>82</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 318.
- <sup>83</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 358.
- <sup>84</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 176.
- <sup>85</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 2.
- <sup>86</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 188.
- <sup>87</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 399.
- <sup>88</sup> Paul Emil von Lettow-Vorbeck, *My Reminiscences of East Africa*, 268.
- <sup>89</sup> Headquarters US Marine Corps, *Expeditionary Operations*, MCDP 3 (Washington, DC: Headquarters US Marine Corps, April 16, 1998), 101.
- <sup>90</sup> Robert Gaudi, *African Kaiser: General Paul von Lettow-Vorbeck and the Great War in Africa*, 408.

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