

# **The 1891 Battle of Lugalo: An Initial Archaeological Investigation of the Hehe-German Battlefields in Iringa, Tanzania**

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## **Abstract**

*The 1891 battle of Lugalo in Tanzania is one of the many the Germans faced against the local people in their endeavour to impose colonial rule. The Hehe warriors under chief Mkwawa, mostly equipped with spears and shields, defeated the German forces with superior weaponry. The aftermath was bloody and costly based on the number of casualties sustained by both parties. Until recently, the battlefield has received no attention from archaeologists. This article presents results of the first archaeological survey. The battlefield is full of bullet cartridges linked to the fight. Over a dozen bullet cartridges were recovered. The assemblage provides an opportunity to broaden the understanding of the military engagement, and to clarify, validate, and reconcile the historical and oral accounts. The Mauser rifle, which so often gave military triumphs in Europeans' warfare against Africans, was the main firearm used by the German forces. The interpretation is supported by a large number of fired Mauser cartridges. The paper also provides recommendations and directions for future research.*

**Keywords:** Mkwawa, Lugalo, Bullet Cartridges, Germany, Tanzania, Battlefield Archaeology.

## 1. Introduction

Tanzania has copious isolated primary and ethnic-based anti-colonial resistances and military encounters that involved the exchange of fire.<sup>1</sup> The 1891 battle of Lugalo in Iringa cannot be easily isolated from the Tanzanian historiography of war (Figure 1). Unfortunately, for a long time, it has not received attention from archaeologists. There is also very little information about the archaeology of other Hehe-German battlefields in the Iringa.<sup>2</sup> Partly, the battle of Lugalo is overshadowed by the iconic battles of the Maji-Maji war (1905-1907) against the Germans which, under the traditional healer Kinjekitile Ngwale, swept several regions of southeastern Tanzania.<sup>3</sup> Besides, the lack of military historians, interests amongst archaeologists, and funding have also grossly inhibited research on anticolonial battlefields. This work employs approaches from conflict

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<sup>1</sup> See Isaria Kimambo and Arnold Temu, eds., *A History of Tanzania* (Nairobi: East African Publishing House, 1969); John Iliffe, *A Modern History of Tanganyika* (Cambridge: Cambridge University Press, 1979).

<sup>2</sup> Pamela Willoughby et al., "A German Rifle Casing and Chief Mkwawa of the Wahehe: The Colonial and Post-colonial Significance of Mlambalasi Rockshelter, Iringa Region, Tanzania," *Journal of African Archaeology* 17, no. 1 (2019): 1-13; Jenipher Miller, et al., "Fourteen Years of Archaeological and Heritage Research in the Iringa Region, Tanzania." *African Archaeological Review* 37 (2020): 271-292.

<sup>3</sup> Gilbert Gwasa and John Iliffe, eds., *Records of the Maji Maji Rising* (Nairobi: East African Publishing House, 1967); James Giblin and Jamie Monson, eds., *Maji Maji: Lifting the Fog of War* (Boston: Brill, 2010).

archaeology to examine the battlefield of Lugalo and to offer a new reflection and dimension on the early anti-colonial wars.

Conflict archaeology is a vibrant area of investigation and has advanced steadily in the last three decades.<sup>4</sup> The primary attention of the novel field has been on the studies of the ancient and historic battlefields.<sup>5</sup> While substantial progress has been achieved by historians to highlight the weaknesses of the primary and ethnic-based anticolonial resistances<sup>6</sup>, our understanding of the African warriors' military expertise and tactical plans to resist colonial rule from an archaeological perspective remain impoverished. The majority of the anticolonial battlefields in Africa have not yet benefitted from archaeological studies. According to Douglass Scott there are behavioural connections between

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<sup>4</sup> For details on developments of conflict archaeology see Douglas Scott and Andrew McFeaters, "The archaeology of Historic Battlefields: A History and Theoretical Development in Conflict Archaeology." *Journal of Archaeological Research* 19 (2011): 103-132.

<sup>5</sup> See Phil Freeman and Tony Pollard, eds., *Fields of Conflict: Progress and Prospect in Battlefield Archaeology* (Oxford: Archaeopress, 2001); John Schofield, *Combat Archaeology: Material Culture and Modern Conflict* (London: Duckworth, 2005); Tim Lynch and Jon Cooksey, *Battlefield Archaeology* (Stroud: Tempus Publishing, 2007); Tony Pollard and Iain Banks, eds., *Scorched Earth: Studies in the Archaeology of Conflict* (Leiden: Brill, 2008).

<sup>6</sup> Adu Boahen, ed., *General History of Africa: Africa under Colonial Domination 1880-1935* (London: Heinemann Educational Books, 1985).

“historical events [battles]” and the “physical remains of the events [artefacts]” recovered from the battlefields<sup>7</sup>. Artefacts from battlefields are the by-products of human conflicts and behaviours left by the participants in their ultimate context of discard. Battlefield archaeology offers a new way to understand the behavioural aspects of African warriors, including fighting organization, tactics, and the succession of events during the fights based on spatial distribution of recovered battle-related artefacts.<sup>8</sup> It can be also used to appraise the accuracy and/or strengthen interpretations drawn from historical and oral accounts.

Battlefield archaeology in Tanzania is a relatively new area of study. Nevertheless, there is a growing number of works that anecdotally touch on ethnographic objects, restitution of atrophied skulls, and archaeological aspects of some

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<sup>7</sup> Douglas Scott, *A Sharp Little Affair: The Archeology of the Big Hole Battlefield* (Nebraska: J & L Reprint Company, 2009), 2,4.

<sup>8</sup> For details on how archaeology can provide new perspectives on battlefields see Richard Fox and Douglas Scott, “The Post-civil Battlefield Pattern: An Example from the Custer Battlefield”, *Historical Archaeology* 25, no. 2 (1991): 92-103; Douglas Scott, *Uncovering History: Archaeological Investigations at the Little Bighorn* (Norman: Univ. of Oklahoma Press, 2013); Douglas Scott, et al., *Archaeological Perspectives on the Battle of the Little Bighorn* (Oklahoma: University of Oklahoma Press, 1989); Peter Bleed and Douglas Scott, “Archaeological Interpretation of the Frontier Battle at Mud Springs, Nebraska.” *Great Plains Research* 19, (2009), 13-25; Eric Sivilich and Daniel Sivilich, “Surveying, statistics, and spatial mapping: KOCOALandscape analysis of eighteenth-century artillery placements at Monmouth Battlefield State Park, New Jersey”, in *Historical Archaeology* 49 (2) (2015), 50-71.

battlefields, mainly the Maji-Maji rebellion battles<sup>9</sup>. Enthused by the recovery of battle-related artefacts from Kalenga and Mlambalasi rock shelter, the author in 2018 launched an ongoing project: *The Archaeology of the German-Hehe Battlefields in Iringa Region* based at the University of Dar es Salaam. The main objective is to search for archaeological traces of the military engagements and interpret their spatial distribution over the landscape to understand how the battles unfolded.

## 2. The Battle of Lugalo

The Hehe Empire of the Iringa Region was a militarized political unit under a formidable paramount chief Mkwawa

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<sup>9</sup> Notable works in Tanzania include Nancy Rushohora, “Desperate Mourning and Atrophied Representation: A Tale of Two Skulls.” *African Historical Review* 51, no.1 (2019): 25-45; Paola Ivanov and Kristin Weber-Sinn, “Collecting mania and violence: objects from colonial wars in the depot of the ethnologische museum, Berlin,” in *Humboldt Lab Tanzania*, eds. Lili Reyels, Paola Ivanov and Kristin Weber-Sinn (Berlin: Dietrich Reimer Verlag GmbH, 2018), 66-149; Oswald Masebo, “Objects of resistance against German colony in southeast Tanzania, 1890-1907,” in *Humboldt Lab Tanzania*, eds. Lili Reyels, Paola Ivanov and Kristin Weber-Sinn (Berlin: Dietrich Reimer Verlag GmbH, 2018), 222-265; Willoughby, et al., 2019; Bettina Brockmeyer, Frank Edward and Holger Stoecker, “The Mkwawa Complex: a Tanzanian-European History about Provenance, Restitution, and Politics,” *Journal of Modern European History* 18, no. 2 (2020): 117-139; Jeremiah Garsha, “The head of chief Mkwawa and the transnational history of colonial violence, 1898-2019” (University of Cambridge, PhD thesis, 2020).

(1855-1898). The Hehe conquered most of the nearby chiefdoms and were the undisputed masters of the southern highlands by 1890.<sup>10</sup> The Hehe also expanded their empire and power towards the north and the coast after further south expansion barricaded by the Ngoni, Sangu, and Kinamanga resistances by the mid-1880s. After the Germans thrashed the coastal rebellions in 1888 led by Abushiri, they began to move further inland. The central caravan route stretching from Ujiji on Lake Tanganyika to Dar es Salaam on the coast was the main artery of the colony and a catalyst to an economically lucrative interior. However, the Hehe frequently raided the caravans, attacked Tanzanians who submitted to the Germans, and devastated the areas around Kilosa. The danger to the caravan was severe during the 1880s and early 1890s and was practically closed<sup>11</sup>. The Germans worried about the vast Hehe Empire, as was the major blockage to the rewarding economic trade with the interior, obstructed penetration along the central caravan route, and control of the territory. They also feared the pugnacious Hehe might attack the coast, and Mkwawa was a serious threat to the security of the colony<sup>12</sup>. The only

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<sup>10</sup> Alison Redmayne, "Mkwawa and the Hehe Wars." *Journal of African History* 9, no. 3 (1968): 409-36; David Pizzo, "To devour the Land of Mkwawa: Colonial Violence and the German-Hehe War in East Africa c. 1884-1914" (University of North Carolina, Chapel Hill, PhD diss., 2007).

<sup>11</sup> Rochus Schmidt, *Der Araber-Aufstand: Seine Ursachen und Folgezustände* (Frankfurt: Sigfried Verlag, 1893), 305; Redmayne, 412, 417; Iliffe, 106.

<sup>12</sup> Wilhelm Arning, "Die Wahehe (Schluß)," in *Mittheilungen von Forschungsreisenden und Gelehrten aus den deutschen Schutzgebieten*, ed.

inescapable option for the Germans was to conquer the Hehe Empire to restore order on the caravan route.

Between 1891 and 1898, the Hehe were engaged in a war against the Germans. On August 17<sup>th</sup>, 1891, from around 7 am, Lugalo village located 22 km east of Iringa town, witnessed a fierce armed clash between the invading Germans with about 400 mercenaries (14 German officers, 362 *askaris* [recruited African soldiers], and 200 porters) with modern weapons marching in a long column under commander Emil von Zelewski (1854-1891) and the Hehe with about 3,000 warriors under chief Mkwawa (1855-1898). A dense forest and tall grasses covered the Lugalo landscape at the battle time and it was impossible to see further than 4 m into the bush. The Hehe warriors hid 30 to 50 m on either side along the old track running to Iringa, and some took position behind large rocks with spears in their hands and elegantly executed the ambush on the Germans from the flanks. Most of the German column was dead within ten minutes, including von Zelewski.<sup>13</sup> The majority of the Germans could not even load their rifles, and only a few fired

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Dr. Freiherr von Danckelmann, vol. 10 (1897): 53-54; Ernst Nigmann, *Die Wahehe: Ihre Geschichte, Kult-, Rechts-, Kriegs-, und Jagd-Gebrauche* (Berlin: Mittler und Sohn, 1908), 53; Tom von Prince, *Gegen Araber und Wahehe: 1890-1895* (Berlin: Ernst Sigfried Mittler und Sohn, 1914), 79.

<sup>13</sup> For detailed accounts of the battle see Hugold Behr, "Der Kampf gegen die Wahehe," *Militär-Wochenblatt* 77 (1892): 420-428; B. Arnold, *Die Schlacht bei Rugaro 1891* (Tansania, Iringa); Nigmann, *Die Wahehe*.

their guns calmly one or two rounds before being overpowered. The fight lasted for a few hours and ended with the Hehe winning the battle. The aftermath was bloody and costly to both parties. As the *Schutztruppen* (German protection troops) officer Ernst Nigmann has explained for the German side, “no campaign cost us more blood and treasure than this one”. Eleven high-ranking German officers, 350 *askaris* and porters were killed, and a substantial number mortally wounded. Some Germans at the rear guard of the expeditionary column survived and retreated eastward about 200 meters, took a hill position, and kept firing several rounds of bullets to defend themselves for the remainder of the day, leaving hundreds of their dead scattered over the landscape. Only 3 Germans, 62 *askaris*, and 74 porters survived.<sup>14</sup> The Hehe confiscated 300 rifles, cartridges, cannons, and Maxim machine guns. Unfortunately, the win also came at a cost to the Hehe side as the casualties may have numbered between 200 and 700 people, including Ngosingosi Mkwawa's son in law and a subordinate ruler in the Kalenga fort located west of modern Iringa town.<sup>15</sup>

The Hehe win at Lugalo bolstered their morale and, in October 1892, they ambushed the German garrison at Kilosa on the northern fringe of their empire and killed Brüning, the head of the station. Nevertheless, the German forces in

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<sup>14</sup> Prince, *Araber und Wahehe*, 97.

<sup>15</sup> Martin Gabriel, “German Counterinsurgency Operations in East Africa: the Hehe War, 1890-1898,” *Small Wars Journal* (2012): 1-7; Pizzo, “Land of Mkwawa”, 100.



1893 defeated the Hehe at Kilimatinde, which reinvigorated their confidence and felt ready to assault Mkwawa's heavily fortified capital at Kalenga in a large punitive expedition on October 28<sup>th</sup>, 1894, under a new commander Friedrich von Schele. After two days of the fierce fight, the Germans devastated Kalenga, but most people and Mkwawa escaped. The Germans seized cattle, goats, sheep, and about 14 tons of gunpowder. The suicidal death of Mkwawa at Mlambalasi rock shelter in 1898 to avoid capture by the German forces brought an end to the war between the Germans and the Hehe. His head was decapitated and given to Captain Tom von Prince (1866-1914) as a memento to end up in the Übersee-museum Bremen.<sup>16</sup> The British Governor, Sir Edward Twining, restituted Mkwawa's skull on July 9<sup>th</sup>, 1954, to Kalenga as part of the Treaty of Versailles of 1919, where and other materials illustrating the Hehe cultural history are curated and exhibited.

There is a big obelisk monument (technically a mass grave containing the mortal remains of the German and Hehe casualties) that measures approximately 15 m high erected at Lugalo to commemorate the death of Emil von Zelewski and the *askaris* killed by the Hehe (Figure 1). On March 13<sup>th</sup>, 1953 was proclaimed as a national monument with Government

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<sup>16</sup> Iliffe, *Modern History*, 1979; Brockmeyer, Edward & Stoecker, "Mkwawa Complex"; Garsha, "Head of Chief Mkwawa".

Notice No. 89. This is the only visible trace of the battle that can be seen today. But military battles are characteristically chaotic mobile events and often cover large areas leaving behind debris in the form of scatters of artefacts fired, torn-off, or dropped during the fight. Indeed, other relics of the battle still lie scattered and/or buried beneath the soil awaiting recovery.

For the Hehe, the Lugalo landscape is bloodstained, sanctified, and epitomizes a scene of a memorable heroic event against a well-equipped European army. The memories of the battle and a win still remain deeply ingrained among the Hehe. However, it was only at Lugalo where the German forces suffered a massive and humiliating defeat ever throughout their Africa's conquest campaign. August 17<sup>th</sup>, 1891, will always count as one of the tragic incidents in the history of the Germans colonial wars. David Pizzo equates the annihilation of the Zelewski's column at Lugalo as a colonial Germany's "Battle of Little Bighorn".<sup>17</sup> Pizzo also maintains that, at Lugalo, their "deadly breech-loaders (Mauser M71s), machine guns, and artillery of the German column, so often the decisive factor in warfare between Europeans and Africans proved on this occasion to be almost useless"<sup>18</sup>. The Hehe warriors were mainly equipped with shields and spears. Nevertheless, what went wrong for the *Schutztruppe* and served advantageous for the Hehe

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<sup>17</sup> Pizzo, "Land of Mkwawa", 39.

<sup>18</sup> *Ibid.*, 93.

warriors? Future research works integrating archaeology, military terrain analysis, and Geographic Information Systems (GIS) undoubtedly will come up with plausible answers and may help answer many of the still open questions.



Figure 1: University of Dar es Salaam Students at Lugalo Monument (Source F. Masele)

### **3. Materials and Methods**

Between 7<sup>th</sup> August and 8<sup>th</sup> September 2018, the author, accompanied by 40 undergraduate archaeology and heritage management students from the University of Dar es Salaam, conducted an initial survey of Lugalo village to search for material evidence of the battle (Figures 1 to 3). The practice is common in Tanzania, and students usually take part in fieldwork and excavations directed by local archaeologists and those co-directed with foreigners as part of practical training and mentorship. Given the rugged nature of the landscape and dense vegetation cover, the archaeological surveys mainly concentrated on isolated open farms (Figure 3). Artefact type, GPS location, and altitude above the sea level were recorded for each item recovered. No archaeological excavation was conducted for the season.

Upon recovery, artefacts were examined to determine their state of preservation and need for rigorous cleaning or conservation. Artefacts were gently scrubbed with a soft brush and later washed with clean water. The majority of the cases had no adhering soil, as were mainly surface finds. However, a few specimens exhibited marginal traces of oxidation and water-induced patination. These were immersed in a weak acetic acid (5%) to remove the oxides from the metal built during the years potentially in the ground and later were washed with clean water.

Bullet cartridges were examined using orthodox firearms identification procedures<sup>19</sup>. The bottom of a cartridge case is often embossed with several pieces of information called headstamps. They may comprise a combination of letters, numbers (Arabic or Roman), signs, and symbols in different layouts. Headstamps usually give information about the place of manufacture, date of manufacture, sometimes lot/batch number, supplier, and cartridge type<sup>20</sup>. A letter at 12 o'clock position denotes a town or city of manufacture. The number(s) at 3 o'clock position is the year of production (normally as the last 2 digits), and a star symbol (\*) at 6 o'clock position stands for brass content. The number placed at 9 o'clock position is the month of production. The headstamps were meticulously studied to identify the type of a firearm (brand or model) in which a given cartridge case was fired and to determine the minimum number of weapons used by the combatants during the fight. A firing pin mark is usually left on the base of a cartridge when fired in a gun. Hand lens at 10× magnifications was used to diagnose evidence of abrasion as well as class and individual

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<sup>19</sup> Jack Gunther and Charles Gunther, *Identification of Firearms* (London: John Willey and Sons, 1935); Julian Hatcher, et al., *Firearms Investigation, Identification and Evidence* (Harrisburg PA: Stackpole Books, 1977); Robert Walker, *Cartridges and Firearm Identification* (New York: CRS Press, 2013).

<sup>20</sup> Henry White and Burton Munhall, *Cartridge Headstamp Guide* (Maryland: H.P. White Laboratory, 1963).

characteristics like firing pin mark presence or absence thereof. The measurements of cases to establish the calibre of a firearm(s) were taken using a Mitutoyo 500 digimatic digital calliper.



Figure 2: University of Dar es Salaam Students at Lugalo  
(Source F. Masele)



Figure 3: Archaeological Foot-survey of Lugalo Battlefield  
(Source F. Masele)

#### 4. Results

A total of 13 military cartridge cases without their bullets were recovered from approximately 8 acres intensively foot-surveyed (Figure 3). These are the direct evidence of the individual firearms used during the battle in 1891. The majority of the cases were recovered from the northern part of the village and a short distance from the old track to Iringa town ( $n = 11$ ). A few cases were also recovered near the existing monument ( $n = 2$ ). Future archaeological surveys certainly are expected to expand the sample of cartridge cases. Nevertheless, this is a relatively large assemblage of artefacts recovered from the German-Hehe battlefields in Iringa Region. A few cases are reported from Kalenga fort and Mlambalasi rock shelter ( $n = 6$  and  $n = 1$ , respectively). The cases exhibited in the Kalenga museum lack archaeological contextual information, except the narrations were collected after the battle of 1894. Details of the recovery of a fired Mauser cartridge from Mlambalasi where Mkwawa committed suicide are provided in Willoughby and her colleagues.<sup>21</sup>

Of the 13 cartridges recovered, 9 had well-preserved and clearly visible headstamps, and the rest were damaged (Figure 4). Damaged cases exhibited post-depositional deformations, dents, striations, and intentional human

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<sup>21</sup> See Willoughby et al., "A German Rifle Casing", 27-28.

modifications. The artefacts are all brass cases and of a centre-fire category<sup>22</sup>. The majority are rimmed ( $n = 10$ ) and a few are rimless-bottlenecked ( $n = 2$ ) cases. They are head stamped with different letters and numbers with or without a star symbol (\*). The cases also bear three (triple-entry headstamps or a 3×120 layout) or four (quadruple-entry headstamps or a 4×90 layout) pieces of information. Details of headstamps on cartridge cases are presented below in a clockwise manner.

Cartridges 1 and 2 are head-stamped **S 86 \* 7** and **S 88 \* 2**, which denote are products from the former Koenigliche Munitionsfabrik Spandau in Germany. The dates of their manufacture are July 1886 and February 1888, respectively. Both are 11.15×60R cartridges and were fired in Mauser rifles (Figure 4).

Cartridge 3 is stamped **12 A 75 S** indicating was manufactured in December 1875. It is an 11.15×60R case fired in a Mauser rifle (Figure 4). Willoughby and her colleagues have also reported a case with virtually identical headstamps (stamped **3 A 76 S**) currently exhibited in the Kalenga museum<sup>23</sup>. The notable difference is the month and year of manufacture. Letters “S” and “A” on cartridges placed at 9 and 3 o’clock position respectively was a headstamp style used by the Small Arms & Metal Company Limited of Birmingham in

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<sup>22</sup>See Frank Barnes, *Cartridges of the World*. 14<sup>th</sup> ed. (Northbrook: DBI Books, 1989); White and Munhall, *Cartridge Headstamp*.

<sup>23</sup> Willoughby, “A German Rifle Casing”, 30.



England. The company was formed in 1873 following the merger of the Birmingham Small Arms Company and the Adderley Park Rolling Mills. It was one of the earliest manufacturers of the Mauser 71 rifle cartridges and exported to Germany until the munition factories in the country met the required standards by the government<sup>24</sup>. The company also later administered the installation of the munition factories at Spandau, Danzig, and Erfurt.

Cartridge 4 is stamped with **D 4 \* 82**. The case was manufacture by the former munition factory at Danzig in Germany in April 1882. It is an 11.15×60R cartridge (Figure 4). Cartridge 5 bears **D 83 \* 1** denoting was manufactured in January 1883 also at Danzig arsenal. Like others, it is an 11.15×60R cartridge. The cartridge case is not fired (Figure 4). Cartridge 6 bears headstamp **L 1882 VIII** and is a typical triple-entry headstamps or a 3×120 layout case.<sup>25</sup> This clearly is a headstamp of the Deutsche Metallpatronenfabrik Lorenz, Karlsruhe in Germany. Since the case bears a Roman number VIII at 3 o'clock position, it may correspond to the

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<sup>24</sup> Erik Windisch and Bernd Kellner, *Die Munition zum Mausergewehr M71: Die erste Deutsche Metallpatrone, Ihre Vorläufer und Nachfolger* (Rosengarten, Schwäbisch Gmünd: Patronensammlervereinigung eV, 2005).

<sup>25</sup> Ian Hogg, *Cartridge Guide: The Small Arms Ammunition, Identification Manual* (Harrisburg: Stackpole Books, 1982).

month of production which is August of 1882<sup>26</sup>. It is an 11.15×60R Mauser cartridge also not fired (Figure 4).

The base of cartridge 7 is stamped **S 85 \* 12**. It is an 11.15×60R cartridge manufactured in December 1885 at Spandau arsenal. The case was fired in a Mauser rifle. Cartridge 8 is also an 11.15×60R cartridge fired in a Mauser rifle. Unfortunately, its base is significantly damaged and only an Arabic numeral **2** can be read out at 9 o'clock position to make the month of production February (Figure 4). The city and year of manufacture for this case could not be determined.

Cartridge 9 is a rimless-bottlenecked and fired cartridge stamped **350 Magnum Nitro Rigby** (Figure 4). John Rigby and Company designed it in 1908 for use in Mauser magnum magazine rifles. The cartridges were prevalent in Africa for safari hunting of dangerous large animals including rhino, elephants, and buffalo<sup>27</sup>. Cartridge 10 bears **375 H&H RWS** was invented in 1912. The RWS stands for Rheinische-Westfälische Sprengstoff Company established in 1886 and had factories at Nürnberg and Fürth Stadlen in Germany.<sup>28</sup> The cartridge resembles 35 Winchester in general appearance and is also fired (Figure 4). It is also a rimless-

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<sup>26</sup> Eric Cline and Anthony Sutter, "Battlefield Archaeology at Armageddon: Cartridge Cases and the 1948 Battle for Megiddo, Israel," *Journal of Military History* 75 no. 1 (2011): 172.

<sup>27</sup> John Taylor, *African Rifles and Cartridges* (Harrisburg: Spottsmann's vitange Press, 1948).

<sup>28</sup> Walker, *Cartridges and Firearm*.

bottlenecked and fired cartridge case for bolt-action Mauser-type magazine rifles very popular for hunting big game<sup>29</sup>.

Cartridges 11 to 13 are all damaged cases and yielded less information. Cartridge 11 is an 11.15×60R rifle cartridge. Its base is significantly damaged rendering its headstamps unreadable, but it has a firing pin mark imprint which suggest was also fired from a Mauser rifle (Figure 4). The city, month, and year of manufacture for this case could not be precisely determined. As for cartridge 12, is only represented by its medial part and distal end and its proximal part is missing. Its neck and shoulder diameters match the 11.15×60R Mauser cartridges. As seen in Figure 4, the case also shows evidence of later deliberate human modification and reuse to hold firm an arrow to the wooden shaft commonly used to hunt birds and small-sized animals. Of note, the case still retains a piece of wood inside. Cartridge 13 is only represented by its distal end and could not be identified to specific types or accurately dated.

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<sup>29</sup> Taylor, *African Rifles*.



Figure 4: Headstamps on Cartridges from Lugalo Battlefield  
(Source F. Masele)

## 5. Minimum Firearms Count

Historical sources show the German expeditionary column was armed with Mauser rifles, cannons, and a couple of Maxim machine guns<sup>30</sup> and possibly Seitengewehr model 1871 (abbreviated short name as S71) long bayonets designed for use with the Mauser rifles<sup>31</sup>. Besides, the German

<sup>30</sup> Prince, *Araber und Wahehe*, 80-82, 307; Redmayne, “Hehe Wars”, 431; Pizzo, “Land of Mkwawa”, 86.

<sup>31</sup> See Emile Lavissee, *Field Equipment of the European Foot Soldier 1900-1914* (Nashville, 1994. 14-20; Chris Dale, “Von Zelewski’s Last Stand: The

commander von Zelewski riding a donkey near the front of the column, defended himself with a revolver (most likely the 1879 Reichsrevolver) and killed three Hehe warriors before being speared in the back<sup>32</sup>.

Guns cannot be easily ruled out were not in the hands of the Hehe warriors during the fight. According to Alison Redmayne, the Hehe acquired firearms much later than the Sangu and Nyamwezi from Mbeya and Tabora Regions respectively. Hehe got guns and gunpowder after 1830 through trade exchange of slaves and ivory with the Arabs and Swahili traders at the post known as Mukondoa near Kilosa town<sup>33</sup>. They had very few guns at the end of 1877 when Frederic J. Elton and Henry B. Cotterill witnessed them in a battle with the Sangu<sup>34</sup>. Still, the Hehe had fewer guns when they defeated the Nyamwezi warriors who had many guns in 1880. Besides, Lieutenant von Tettenborn who was one of the survivors at Lugalo saw on 15<sup>th</sup> and 16<sup>th</sup> August 1891 a few Hehe warriors at Image village armed with a few guns but most had only spears and shields<sup>35</sup>. Some historical

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Battle of Lugalu 17 August 1891”, (2017), 5. Accessed from [www.academic.edu](http://www.academic.edu) on 14.06.2021.

<sup>32</sup> Prince, *Araber und Wahehe*, 307; Pizzo, “Land of Mkwawa”, 96; Dale, 5.

<sup>33</sup> Redmayne, “Hehe Wars”, 390, 410-416.

<sup>34</sup> Frederic Elton and Henry Cotterill, *The Lakes and Mountains of Eastern and Central Africa* (London: John Murray, 1879), 378; Redmayne, “Hehe Wars”, 426; Iliffe, *Modern History*, 109.

<sup>35</sup> Redmayne, “Hehe Wars”, 419.

sources also mention that the Hehe warriors had rifles of local production during the fight at Lugalo<sup>36</sup>. Later the Hehe acquired 300 Mauser rifles when they defeated the German at Lugalo. Chief Mkwawa kept the guns and exclusively were given to the royal guards, elite warriors, and elephant hunters. Besides, Mkwawa possessed a gun and bullet cartridges (most likely Mauser cartridge cases) until his death at Mlambalasi<sup>37</sup>. At Lugalo, the Hehe warriors were mainly armed with stabbing and throwing spears made using wood, and a metallic head, and shields made out of cowhide. Like many other African warriors, the Hehe preferred spears (short and long spears are known as *missala* and *migoha* respectively in Hehe language) and shields because they were effective in numerous intertribal battles with neighboring rivals. At close combat range, a stabbing spear is much more effective and highly lethal<sup>38</sup>. According to Redmayne, the Hehe copied their stabbing spears and shields designs from the Sangu, who also copied them from the Ngoni from Ruvuma Region.

## 6. Discussion

After 130 years of a courageous historical event, an initial archaeological survey results indicate Lugalo battlefield holds a high potential for intensive conflict archaeology

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<sup>36</sup> Pizzo, "Land of Mkwawa", 94.

<sup>37</sup> Redmayne, "Hehe Wars", 426; Iliffe, *Modern History*, 115-116; Pizzo, "Land of Mkwawa", 71, 94.

<sup>38</sup> Chris Peers and Raffaele Ruggeri, *Warrior People of East Africa* (Oxford: Osprey Publishing, 2005).

studies. The military engagement left physical evidence which are still scattered over the battlefield. The cartridge cases recovered comprise a limited variety representing the actual firearms used in the fight. Most of the cases are of German origin and match those collected from Kalenga and Mlambalasi<sup>39</sup>. Mauser cartridges are the most common type ( $n = 10$ ) and predate the August 17<sup>th</sup> 1891 event. The dates of their manufacture vary with a range of 13 years, with the earliest recorded date being December 1875 and the most recent date being February 1888. Peter Mauser designed the 11.15×60R also known as 11 mm or .43 cartridge in 1871 for use in bolt-action Mauser rifle model M71. It was a versatile smokeless black powder cartridge used in German military and sporting rifles of the time. The former German government arsenals at Spandau, Danzig, and Erfurt mass-produced the Mauser cartridges<sup>40</sup>. In 1872 the German government adopted the 11 mm as the standard military rifle cartridge and was in use until 1888<sup>41</sup>.

The recovery of a couple unfired Mauser cartridge cases from the battlefield is of particular interest (Figure 4 and 5; cartridge no. 4 to 6). The cases were recovered about 70 m south of the old track to Iringa (see Figure 5). It can be

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<sup>39</sup> See in Willoughby et al., "A German Rifle Casing" for the details.

<sup>40</sup> White and Munhall, *Cartridge Headstamp*, 1963; Hogg, *Cartridge Guide*, 1982.

<sup>41</sup> Barnes, *Cartridges*.

suggested, the cases either misfired or were accidentally dropped by panicked German expeditionary corps or as they tried to load their guns in haste when ambushed by the Hehe. Unfired cases can also confirm the hasty and haphazard nature of the battle as reported in different historical accounts and/or may suggest the possible location of the epicenter of the ambush and where the main German expeditionary column was decimated by the Hehe warriors. Besides, the cases may also hint where the heavy fights took place.

Firing pin marks typically deep oval-shaped impressions were noted on a total of six Mauser cases, which corroborate the historical and oral accounts that there was an exchange of fire at Lugalo (Figure 4 and 5; cartridge no. 1 to 3, 7, 8 and 11). However, none of these had multiple firing pin marks. The cartridge cases were mainly fired from Mauser rifles. Certainly, survivors of the German expeditionary column (the 6<sup>th</sup> company which did not fall into the Hehe trap) mainly fired the cases during their retreat eastward (Figure 5). Peter Mauser also invented the Mauser rifle in 1871 also called Gewehr M71<sup>42</sup>. It was a single-shot breech-loader rifle using bolt-action mass-produced at Spandau and Danzig arsenals for distribution to the imperial German forces by early 1872. By 1886 the German forces were equipped with

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<sup>42</sup> Walther Smith, *Mauser Rifles and Pistols*, 3<sup>rd</sup> ed. (Pennsylvania: Military Service Publishing Company, 1956); Robert Ball, *Mauser Military Rifles of the World*, 4<sup>th</sup> ed. (Iola: Krause Publications, 2003).



approximately 1.82 million Mauser rifles<sup>43</sup>. The Mauser rifle was superior to other rifles in competition at the time. It was a remarkably efficient weapon and won a lethal reputation. It weighed 4.7 kgs, 1.4 m overall length, with a firing range of 2.93 kms, and a rate of firing five rounds per minute. It was upgraded in 1884 and designated the model Gewehr M71/84 rifle chambering the same 11 mm Mauser cartridges. The new model also became the first German magazine-fed and repeating rifle. The German army commission approved in 1884 the M71/84 rifle and therefore could have been available and used at Lugalo in 1891.

It is tempting to suggest the cannons and Maxim machine guns were not used at Lugalo as the Germans could not manage to get them into actions. Future research works can bolster this tentative hypothesis. Historical sources covering the battle state a Hehe warrior spear-stabbed Sergeant Unteroffizier Thiedemann to his abdomen while he was trying to unfasten the Maxim machine gun from the donkey<sup>44</sup>. Later, on the same day he succumbed to his spear wounds and was buried at Lugalo. Of note, no gun, Maxim gun fired cartridges, or fragments of artillery shells were recovered from the area surveyed. The fact that the ambush on the Germans happened so hurriedly and unexpectedly can explain their absence. The offensive Hehe warriors

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<sup>43</sup> *Ibid.*, 65.

<sup>44</sup> Prince, *Araber und Wahehe*, 307; Pizzo, "Land of Mkwawa", 95.

surprised the Germans who totally had no idea of their presence at Lugalo. As Lieutenant von Heydebreck one of the survivors later reported on the disaster “the entire sequence of events...had played itself out two to three minutes”<sup>45</sup>.

A small concentration of fired cartridges is clearly noted on the northern edge of Lugalo village and near the old track to Iringa (Figure 5). Fired cases can hint the German survivors eastward withdraw route, movements, and their position during and after the ambush. The Hehe main fighting forces might have been positioned immediately west of the concentration of fired cases. Due to the small sample size of cases, this suggestion is tentative, but it is anticipated will be augmented in future analyses of a larger dataset of battle-related artefacts. Besides, it must be noted that fired cartridge cases stamped **Magnum Nitro Rigby** and **375 H&H RWS** cannot be ascribed to the battle as their date of manufacture postdate the event and these are more likely the products of later big game hunting at Lugalo (Figure 4; cartridge no. 10 and 11).

Lugalo landscape was ideal for an ambush with spears and shields. The Hehe chose a military wise suitable location to effectively execute the ambush on the Germans. The site of the ambush was a rather long narrow and deep curved Mgera River valley (Figure 5). The Hehe warriors took advantage of both the landscape and vegetation cover

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<sup>45</sup> Quoted by Pizzo, *idem*, 70.

against the enemy armed with superior weapons to avoid an open battle. The dense forest and tall grasses considerably limited visibility from the flanks for the Germans. The large rocks provided the Hehe warriors with both cover and protection from the German rifles and machine guns. The Hehe used an improved Zulu's "cow horns formation" (flanks attacks from left and rights) well-suited to the landscape of the Uhehe that permitted total encirclement, and eliminated gaps through which the Germans could have escaped at Lugalo. The fighting tactic organization also permitted continuous battle-readiness and to respond to an attack from any direction<sup>46</sup>. Historical sources also admit the Hehe enjoyed a unique "military intelligence network" developed over decades of warfare with neighbouring societies. They constantly gathered "intelligence information" using spies (*vatandisi*) who also during battles operated two to four days march ahead of the main army.<sup>47</sup> The Hehe favoured to march at night, take up position, and then attacked during the day. Before the ambush the Hehe had detailed information on the size, composition of the German expeditionary column, and position of their firearms. Spears (stabbing and throwing) and shields in the hands of the Hehe warriors played a significant role in the ambush.

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<sup>46</sup> Pizzo, "Land of Mkwawa", 87.

<sup>47</sup> See in a film documentary by Seko Shamte, *Mkwawa: Shujaa wa Wahehe* (2011).

Indeed, it was a stabbing spear that finished the life and military carrier of the German commander Emil von Zelewski and took the victory at Lugalo from the German forces well-equipped with modern weapons. At Lugalo each Hehe warrior had up to six throwing spears and a stabbing spear with a long blade. Historians have frequently attributed the Germans defeat to von Zelewski's arrogance and underestimation of the Hehe army strength. He also neglected the military advice and support given by his compatriot Captain Tom von Prince before the annihilation as he adamantly mocked in reply, "the fellows [the *Hehe*] haven't even got guns, just shields, and spears"<sup>48</sup>. He also made a grave mistake of ignoring to send patrols ahead to secure the route in advance<sup>49</sup>. Tom von Prince later admitted "we knew very little about this tribe [the Hehe], but everything indicated that they were not to be taken lightly"<sup>50</sup>. Nevertheless, military historians and archaeologists concur that battlefield like Lugalo are better interpreted from a "military terrain analysis" approach<sup>51</sup>. Ongoing archaeological research at Lugalo battlefield directed by the author follows the models and analytical methods of modern conflict archaeology.

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<sup>48</sup> Prince, *Araber und Wahehe*, 89; Redmayne, "Hehe Wars", 419; Iliffe, *Modern History*, 108; Pizzo, "Land of Mkwawa", 87-93.

<sup>49</sup> Prince, *Araber und Wahehe*, 174; Pizzo, "Land of Mkwawa", 12.

<sup>50</sup> Prince, *Araber und Wahehe*, 80.

<sup>51</sup> Sivilich and Sivilich, "Surveying, statistics, and spatial mapping".



Figure 5: Distribution of Cartridges from Lugalo Battlefield  
(Notation by author; Image from Google Earth)

## 7. Future Research Agenda

The integrity of the battlefield is good and has not undergone significant land modifications. A tiny part of the battlefield was destroyed in the late 1960s following a tarmac road construction through Lugalo village to Iringa town. Looting of battle-related artefacts and illegal metal detecting by relic hunters have not been reported. The village is also not highly populated, and there are relatively few houses and graves scattered on the battlefield (Figure 5). The survey conducted cannot be taken as a complete archaeological

understanding of the Lugalo battlefield. The following further research agendas are equally viable and encouraged.

As of now, the core location where the battle was fought is not precisely known. It is generally assumed by many people that the area (s) near the existing monument was the core of the military engagement and away from it as the peripheries (Figure 1 and 5). It is suggested that future archaeological works should aim at locating the core and the boundaries of the battlefield. Future archaeological studies can also provide valuable data that cannot be gleaned from the available historical and oral accounts. Spatial distribution of bullet cartridge cases can precisely yield information on how the Hehe executed the deadly ambush, avenues of attack without being noticed, and movement of the German soldiers and individual firearms across the Lugalo battlefield (see Figure 5).

Historical chronicles and oral accounts describe the Hehe executed the ambush along or near the track running to Iringa town<sup>52</sup>. Indeed, this area witnessed the majority of the actions of the military engagement. Part of the track about 3.5 km long is still visible in the northern part of the village (see Figure 5 marked with blue dotted lines). Mouldered mortal remains of the battle casualties also spent several years scattered on the ground along it before being interred

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<sup>52</sup> Prince, *Araber und Wahehe*, 306, Redmayne, "Hehe Wars", 419, Iliffe, *Modern History*, 109; Pizzo, "Land of Mkwawa", 93.

in the erected monument<sup>53</sup>. The majority of the cartridge cases were also recovered from near the track. Fittingly, the area is pivotal and should receive special attention and intensively searched for battle-related relics. Since the surviving battle-related artefacts are mostly metallic or associated with a metal, metal detectors are the most effective to locate them<sup>54</sup>. It is also suggested that the track should be marked and protected as a national monument. Currently, the legal protection is limited to the existing erected monument.

Future and ongoing research should be directed towards a better interpretation of the battlefield to enhance the visitors' experience. The artefacts recovered have both commemorative and economic values and can be used to make an exhibit to visitors. Community engagement should also be the focus of future research. This will help to protect and conserve the integrity of the battlefield. Any future development works involving land modifications should not be carried out without a detailed archaeological survey. This can be easily achieved by ensuring the presence of an archaeologist on-site.

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<sup>53</sup> Prince, *Araber und Wahehe*, 307-308.

<sup>54</sup> Linda Stine and Darren Shumate, "Metal detecting: an effective tool for archaeological research and community engagement." *North American Archaeologist* 36, no. 4 (2015): 289-323.