

Conversations along the Mbwemkuru: Foreign Itinerants and Local Agents in German East Africa

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The underlying theme of this essay is how intelligence was gathered and expertise dispersed in an emerging colonial environment in Africa, and how that knowledge was captured, credited and distributed between local Africans and (largely) itinerant Europeans. It sets that discussion within a more recent debate on the mechanics of European exploration during the wider nineteenth century. The expanded population of Europeans (officials, merchants, missionaries) that arrived in the later part of that century to consolidate the colonial enterprise in German East Africa often moved with initial uncertainty through the landscape, triggering a demand for topographical knowledge to become commodified and commercialised, to become less dependent on the knowledge of individuals. This demand fuelled the production of an innovative series of standardised grid maps. At a time when slavery was still legal, when the local workforce was increasingly discussed in colonial circles in terms of unskilled plantation labour, our essay explores two case studies that demonstrate how certain African experts came to exert key technical and management influence within long-term scientific and commercial projects unfolding in the southeast corner of what is today Tanzania. The matter of water flows through this essay, and does so with deliberate intent.

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The Royal Geographical Society (RGS) in London hosted an exhibition in 2009 entitled *Hidden Histories of Exploration*.¹ The purpose of that exhibition was to tease out and rebalance the role of local enablers who were often crowded out of the self-publicising accounts of nineteenth-century European travellers. The African component of this exhibition was very much concerned with what is now Tanzania and the European travellers (Livingstone, Speke, Grant, Stanley, Burton, Johnstone) who usually started their journeys in Zanzibar and who were concerned with the “big” questions of the origin of the Nile or the location of the Central Lakes. The RGS exhibition had an

understandable bias towards the British and to the content of its own collections.² However, in the same broad geographical arena, and in an earlier period to the names mentioned above, the German missionaries Rebmann and Krapf, operating from a Mombasa base, had travelled to Mount Kilimanjaro (1848) and Kenya (1849) and in the years afterwards continued to collect further information about the far interior from African informants. The ideas delineated in the RGS exhibition have recently been explored in an equivalent way for these German travellers by modern German scholars.³ Many of these discussions tend to ignore the few non-European travelogues that exist for East Africa in this early period.⁴

One might even suggest that the presence of European travellers in the East African interior through much of the nineteenth century was a singularly unimportant phenomenon when perceived through a more local lens. They had no substantive impact on the structures of Zanzibari commercial trade networks that radiated into the interior and their presence was largely irrelevant to the unfolding of powerful military states like, for example, the Ngoni, the Hehe, and the Mbunga confederacy. The scholarly “decentring” of the central East African trade route, the detailed understanding of its technical operations under African leadership—both static and itinerant—owes much to the modern work of Stephen Rockel.⁵ Although his work concentrates on the central caravan route, there is little to suggest that the practical mechanics of trade and transport he describes were appreciably different on the trade routes heading to the southern ports of Kilwa and Lindi.

There were odd examples of Europeans who settled very early in this area. A new British missionary society had been formed in 1857 in direct response to the African activities of David Livingstone. Its initial attempt to establish a permanent presence in the vicinity of Lake Nyasa starting in 1861 was disastrous, its personnel largely destroyed by malarial disease. A later approach entailed the establishment of intermediate stations and the most important of these was established at Masasi in 1876, six days journey due west from the coastal port of Lindi. The Masasi mission needed to act like a African entity, assessing the local populations and topography, coming to local accommodations and alliances both with Yao incomers pushing from the south and the expansive Ngoni entities pushing from the west.⁶ Its immediate environs soon became an important intermediate staging post for commerce flowing between the coast and the far interior.

Defining the Rectangle

Having staked an imperial claim in East Africa after 1885, Germany proceeded to progressively define that colonial territory with the establishment of external boundaries that separated it from other colonies, in addition to the creation of twenty-three internal administrative districts and three residencies (Bukoba, Ruanda, Urundi). This essay is set within two of those district units, Lindi and Kilwa, in the southeast corner of the colony. They could be visually characterised on a map as two stacked rectangular boxes. The southern base was formed by the Ruvuma River, which also became an international boundary with the Portuguese territories to the south. The northern boundary was formed

by the lower Rufiji river system. But besides the obvious eastern border of the Indian Ocean there was also an internal boundary between our two boxes that delineates our study. That was the relatively obscure Mbwemkuru River that stretched 294 kilometres from its headwaters in the central Donde Plateau to its exit in the Indian Ocean near the small coastal settlement of Kiswere. The term “obscure” is used here to indicate that this largely seasonal stream was never associated with a significant commercial route into the interior nor with a substantial population settlement.

Our various stories unfold in a period of quite dramatic economic change in the south-east. We might try to capture that change in terms of the export statistics for Lindi for 1903, the first year for which there are official differentiated statistics.⁷ In terms of monetary value the two items that dominated the export profile of the port were wild rubber and beeswax. At a respective monetary value of 208,655 marks and 204,080 marks, they accounted for half the monetary value of exports. The production of wild rubber in particular was a response to a new industrial demand in Europe linked to the development of the bicycle and automobile, a demand that began to rise sharply from around 1890. Both rubber and wax were even more significant as exports from the port of Kilwa.⁸ The initial substantive source for wild rubber in German East Africa was situated in the Donde Plateau at the western edge of the Kilwa district; the primary caravan routes from Kilwa that had previously slanted southwards to the middle Rovuma were now reoriented more directly westwards. If we examine the quantitative side of the 1903 Lindi export statistics then the dominance of foodstuffs (millets, maize, sesame) is most evident. The term “breadbasket” (*Kornkammer*) is often used in contemporary literature to describe the Lindi district; such products were usually deployed to satisfy more regional and territorial demand. Kilwa might be dominant in terms of rubber production but Lindi, with its higher population density and more diverse terrain, would always be dominant in food production.⁹ The Lindi conurbation comprised about two thousand people at the turn of the century, yet the figure would be seasonally augmented during the dry season that ran roughly from June to September. The outbreak of the Maji Maji Rebellion in 1905 would dramatically disrupt economic activity in the South over a period of two years with substantial loss of life and disruption to the economy.¹⁰ Yet what is equally surprising is to what extent functioning economic structures quickly reasserted themselves.

On the Cusp of Colonialism: Four Cautionary Tales

As the German stake in Africa grew from an occasional interest during the nineteenth-century era of exploration to a specific geographical interest after the Berlin Conference of 1884/5, agents of the German state (and other interested German commercial parties) felt an increased need to traverse their allocated terrain with a lessened reliance on local expertise. This subtle change in approach could be fraught with considerable danger, as the four following tales illustrate.

The first unfolds on the upper reaches of the Mbwemkuru River in October 1891.¹¹ The German adventurer Hugold von Behr had departed from the coastal port of Lindi with twenty armed porters and had arrived at Masasi. At that point he decided to indulge

a personal whim. He diverted in a northerly direction to try to intersect an old caravan route that had been traversed three decades earlier by two of his heroes, the German geographer/explorers Albrecht Roscher and Baron Klaus von der Decken.¹² (Indeed, the fact that these paid passengers on African-led commercial caravans were rapidly seen as national exploratory icons takes us back to the perspective of our introductory paragraph).¹³ Quite soon into his journey he was informed by locals that the old caravan route was disused and the villages that had serviced it no longer existed. He made the fateful decision to continue. Although his crew had a fourteen-day supply of food, they carried only a single day's ration of water. On the morning of the third day he crossed the dried course of a river that he initially believed (probably correctly) to be a tributary of the Mbwekuru and continued for the rest of the day. At the point when he finally faced the fact that he was in peril, he was three days out from his start-point, uncertain of his exact position, with no water supplies and already suffering from water deprivation. As the exploration party retraced its route, all loads and weapons were abandoned and individuals started to fall by the wayside and separate from each other. Von Behr and one servant eventually reached Masasi, convinced that they had lost everyone else. In fact, the bulk of his party discovered a spring and most their lives were spared. Two porters died. Von Behr would have considered himself a reasonably experienced individual in East Africa, yet he had never operated extensively in the southern interior before 1891. His curiosity had lured him into a "seasonal desert" at the worst possible time of the year.

Our second tale encounters a moment of crisis not so far from where von Behr began his perilous return trip. In late 1893 the colonial governor, von Schele, led a substantial military force to stamp German authority on the southwestern interior.¹⁴ On the outward journey the expedition never strayed too far from the extended Rufiji river systems. However, on the return journey, a decision was made to head directly east to Kilwa to explore the newly emerging trade routes to the wild rubber production centres of the southern interior. As they passed through the Donde Plateau in March 1894, they were unable to fully provision for the last leg to Kilwa. The result was a series of forced marches of up to forty kilometres a day where again soldiers and porters were abandoned along the route. The ultimate death toll was identical to that of von Behr: two porters died. In this case, since this section of the journey was in the middle of the rainy season (March), food rather than water was the issue—although in fact the two are intimately connected. In the wider context, in both cases, faulty (or inadequate) intelligence was the issue.¹⁵

The von Schele expedition had fostered the impression—certainly somewhat prematurely—that it was now safe for other interested European parties to venture into the southern interior. In a sense, it triggered the circumstances of our third tale. Since 1889 the Roman Catholic Benedictines of St. Ottilien had been assigned a vast area of proselytisation—the Apostolic Prefecture of South Zanzibar—that encompassed the entire south of the new colony, yet its efforts had been largely restricted to the environs of Dar es Salaam. The Apostolic Prefect, Maurus Hartmann, became convinced that it was time to make good on their regional commitment. His reconnaissance journey up

the Lukuledi Valley, exactly three years after von Behr, was a mixture of high drama and organisational chaos. He recalled that “the porters were my biggest, continual cross to bear on the whole trip, even more so than my injured feet.”¹⁶ Experienced Nyasa porters were available in the coastal port of Lindi but they were only interested in one-way contracts to the Central Lakes. Local Lindi porters refused to volunteer because of rumours about Ngoni war parties in the interior. Hartmann was forced to accept a press-ganged group of men collected from local slave-owners or swept off the streets by soldiers. His primary guide, for many of the same reasons, was not considered particularly knowledgeable. Departing in early November 1893, this party stuttered its way westwards in the direction of Masasi while the Roman Catholic cleric reviewed his exploratory options. Reluctantly dragged on to Masasi by his porters, he did not engage closely with the UMCA (Universities’ Mission to Central Africa) missionaries because he saw them as his religious competitors. Eventually, where von Behr turned north, Hartmann turned south. The result of their actions was strikingly similar. Hartmann took advice from a porter who claimed to know a shortcut to the Ruvuma River. For the next three days they travelled southwards, encountering neither settlements nor sources of water. Increasingly desperate, they were reduced to drinking wine and chewing the bark of trees. On the morning of the third day the expedition realised they were only fifteen minutes from the waters of the Ruvuma and the crisis disappeared. On 29 October, after twenty-nine days of travel, Hartmann arrived back in Lindi. His account of the journey was published in an extraordinarily short period of time, the missionary leader being determined to advertise to potential recruits and Roman Catholic donors that his society was poised to do business in the Lindi hinterland.

Hartmann would not have been aware that another traveller, a geologist called Lieder, had covered similar territory some seven months before; the details of his specific journey were only published some three years later.¹⁷ At that time it was bookended with two complimentary notes in the journal concerned. The editorial forward recommended it as a “model” (*mustergültig*) for travel reporting. Lieder represented a new breed of professional observer (geologists, mining engineers, surveyors) that emerged in German East Africa in the early years of the colonial enterprise. They were trained observers of terrain and they often travelled circuitous routes; they were looking for new economic (largely mineral) opportunities revealed in the physical landscape. Lieder was an experienced traveller. Resident in Tanga from 1890, he had already done survey work in the hinterland of that town as well as Dar es Salaam. In fact he had already briefly been in the Masasi area in 1891. As an individual, Lieder went beyond the confines of his speciality. He was also an accomplished ethnographer with a sense of history.¹⁸ Besides describing what he saw, he was continually extracting information from other observers, whether African or European. In a broad sense he understood the widespread pattern observed on his travels where security took priority over convenient access to water and arable land. At Masasi in March 1894 he also considered his own options about the direction of travel to the coast. Splitting his party, he sent the bulk of his porters down the established Lukuledi Valley route to Lindi while he headed north to Mount Ilulu, with the intention of then following the Mbwenkuru to its source at Kiswere. Although he could find no guides in Masasi

with knowledge of his entire proposed route, he had enough supplies (unlike von Schele) and enough confidence in his abilities to take a calculated risk. He reached his destination without any significant problems or loss of men.

In the later 1890s the arguments about topographical knowledge firmly shifted away from big egos and big questions to more prosaic questions, questions like the local existence of drinking water.¹⁹ Economic constraints and strategic priorities created additional dimensions to pure intellectual curiosity. Information was increasingly processed through the medium of cartography. Hartmann had access to a “Kiepert map”, which he found singularly unhelpful for his journey.²⁰ Kiepert’s supplementary note to Lieder’s 1897 article noted that four additional detailed route reports were waiting to be processed into cartographic format just for the area Lieder had earlier covered.²¹ In fact it was another four years before those planned maps were published. This seemingly chaotic, and delayed, approach to processing cartographical information must be understood within a wider context.

Making Knowledge Visible

Contemporary German commentators were to claim that Germany was the technical leader in the cartographical representation of the African continent.²² The semi-official *Mitteilungen aus den deutschen Schutzgebieten*, established in 1888, was the initial vehicle for processing material, but the growing volume of data, and the perceived need to standardise and commercialise output, soon led to the gradual (and additional) outsourcing of “official” cartographical production to the Berlin firm of Dietrich Reimer, initially in 1892 and in a more formal fashion in 1899. Richard Kiepert, then Paul Sprigade and Max Moisel, led a team that came to employ more than thirty cartographic technicians.²³ This was the closest German equivalent to the Ordnance Survey in Britain. The philosophy adopted from the beginning was to issue product “quickly and cheaply” (*Schnelligkeit und Billigkeit*).²⁴ The pursuit of perfection (*Genauigkeit*) was to be a longer-term, iterative process.

One of the key decisions taken in this period by Dietrich Reimer was to adopt a standardised grid system for representing cartographical information in all the German colonies. In German East Africa the scale of 1:300,000 was adopted. The series began in 1894 and produced its final map (Kilimanjaro) in 1911. The total output was twenty-nine full maps with six smaller maps that rounded off the uneven edges of the grid. At the end of this initial production cycle, Siegfried Passarge²⁵ estimated (for all the German African colonies) that 480 route surveys had been processed comprising 3,117 pages of data. To that were added an additional 356 specialist surveys as well as longitude/latitude measurements at 699 specific locations.²⁶ The technical difficulties of translating such disparate data into a coherent cartographical form were enormous. The prioritisation of work may seem random at first glance, but there are underlying patterns for East Africa. The first tranche of grid maps (1894–99) concentrated on the areas where the long-term historical data was most dense, essentially across the central trade route and around the Great Lakes. The second tranche (1900–5), however, sat entirely in the

South. (The maps that cover our rectangular boxes appeared in 1901.) And it is only in the South that second editions appear before the First World War. This concentration is not accidental; it is a recognition of the importance of this region to the colonial economy. These grid maps were designed to be purchased in bookshops and the shops of outfitters. It would be instructive to quantify any impact of these new maps, but the entire commercial records of Dietrich Reimer were destroyed by bombing and fire in 1945.²⁷ The assumption is that the primary customers were the German military, missionaries, and merchants of the period. Whether any of these official maps ever made their way into African hands is pure speculation. Having said all of that, one might note the (coincidental) experience of the anthropologist Karl Weule in the hinterland of Lindi in 1906.²⁸ “My men must have a marked topographical instinct—otherwise it is difficult to explain the large number of maps with which they have overwhelmed me.”²⁹ He had just conducted a “thought experiment” with his support crew by issuing them with pencil and paper and then asking them to visually represent the range of their topographical knowledge.

This discussion of cartography may seem slightly disassociated with the individuals in this essay, but this is certainly not the case. The designers of the grid series embedded a huge amount of historical metadata in their creations.³⁰ Von Behr’s near-death experience, for example, is traced on the appropriate map, as are the journeys of the early German travellers he sought to celebrate. A hunting camp on the upper Mbwekuru associated with an individual called Knochenhauer also makes its appearance on the same map.³¹

The Elephant Hunters

The East African coast had exported huge amounts of ivory during the eighteenth and nineteenth century, ivory that originated from networks both local and regional. By the end of the nineteenth century the flow of ivory had gone into steep decline. Between 1895 and 1905 the volume flowing through the coastal ports under German control had declined by 85 percent. In the 1903 export statistics we have already examined for Lindi, it occupied only fifth place by value. By the beginning of the First World War ivory had ceased to be an significant export. There were a wide variety of reasons for that decline, but an important factor was the increasing restriction on hunting imposed by the German colonial government and, where hunting was permitted, the cost of hunting increased dramatically as a result of the introduction of high licensing fees from 1896. These restrictions were often differentially applied so that Africans were effectively shut out of this activity, leaving the field to a very small number of European hunting specialists.³²

Three well-known European elephant hunters were associated with the Mbwekuru area before 1906. It is important to emphasise that none of these European individuals came to East Africa as full-fledged elephant hunters. August Knochenhauer had some experience in Germany as a recreational hunter and, within the context of his extensive East African experience, acted as a hunting guide as well as trapping African animals and

acquiring trophies for the European market. He was not a specialist elephant hunter until he was forced to drastically reassess his priorities in light of the 1896 hunting laws. His posthumous autobiography is essentially an initial record of that rapid transition.³³ His effective successor was James Sutherland (1872–1932), who came to hunting for the first time in 1899 after pursuing a wide variety of jobs in Southern Africa. Starting with the fewest financial resources and the least hunting experience, he eventually established the greatest international profile.³⁴ The third person, strictly speaking, was not a commercial elephant hunter. He was Hauptmann Theodor von Hassel (1868–1935), in charge of the Lindi Schutztruppe contingent from 1903–1904 and then Bezirkschef of the Mahenge Military District from 1904–1906.³⁵ Those who came later would learn from those who came previously. Sutherland took over Knochenhauer's hunting camp on the Mbwekuru. Von Hassel read Knochenhauer's autobiography in 1903, duplicated his hunting arsenal, and engaged Knochenhauer's chief African specialist as a mentor. Although there is no documented connection between von Hassel and Sutherland, it would have been exceedingly strange if they had not been aware of each other; they worked in the same area and both fought on the German side during the Maji Maji conflict.

To progress from absolute or partial ignorance required drawing on local expertise and local experts. In von Hassel's opinion:

Hunting elephants is not child's play. It requires an iron will, hard muscles, a quiet heart, a steady hand and a good weapon. To those personal requirements, you need to add good *fundis* (experts); it would be a rare occurrence for a European to shoot an elephant without the assistance of natives. The *fundis* are essential to the process, as food is to life. One also needs to cultivate the trust of natives to acquire knowledge of the usual localities of these animals. Once all these factors come together, then everything works.³⁶

Each of these hunters had a senior African partner or partners, and in the case of Knochenhauer and von Hassel, it was the same individual. In his autobiography von Hassel devotes an entire chapter to a man called Musa, a hunting specialist who had his origins west of Lake Nyasa. He is described by von Hassel as "fifty years old, muscles of iron, tireless once he is on the scent . . . [with] more experience of the hunting grounds of Kilwa and Lindi than any living man."³⁷ In 1903 he was persuaded out of retirement to take one last journey up the Mbwekuru so that von Hassel could bag his first elephant. As they travelled there and back von Hassel took every opportunity to interrogate him about his experiences with Knochenhauer. Once on the Mbwekuru the German officer and his gun-bearer endured a tongue-lashing from Musa when the first shot at an elephant went wildly astray:

Do you call that taking aim? That was a joke! Are you here to play games or shoot elephants? [. . .] I might as well take my money now and return home!³⁸

Von Hassel could be remarkably self-deprecating in his later memoirs. In fact this is the second time in East Africa he admits a reprimand from an African associate. Once on patrol with his company along the Portuguese border he was taken aside by his senior African noncommissioned officer and reprimanded for hunting lions alone and with an

inadequate firearm. His officer is insistent that he is responsible for von Hassel and could not stand by silently when he acted a fool. Von Hassel is astonished by the reprimand and it alters his perception of military authority from a strictly hierarchical approach to a more collegiate one.

In 1896 Musa had been waiting on the docks at Lindi as Knochenhauer and his visiting brother disembarked. He and his colleague Libanda (another Nyasa elephant hunter) had already prepared a caravan for the six-day journey to the far end of the Lindi district. Knochenhauer's diary account of that journey makes it abundantly clear the respect and precedence that is given to Musa. One incident is illustrative. On the first sighting of elephant spoor as they approach the end of their journey, Libanda, with Musa's assistance, carries out rituals (*dawa*) to bind the team to each other, to the hunter's ancestors and to the hunting grounds. A sceptical Knochenhauer thinks that Musa is "a little bit of a hypocrite" because he is "much too intelligent to seriously believe in this humbug," but he keeps his opinions to himself.³⁹

We know very little of Sutherland's chief African advisers except their names, but it is clear that they saved his life on several occasions and, when one of them is killed in an elephant charge in 1904, Sutherland is so distraught that he refuses to ever hunt along the Mbwenkuru again. One should not underestimate the emotional and social attachments among elite teams whose lives depended on each other. In 1895, within the content of one of his magazine articles, Knochenhauer commemorated the death of Bakari, a young member of his team killed by lions outside his home near Lindi. It is clear that Knochenhauer expects some adverse criticism for memorialising an African in the pages of a German hunting magazine but he insists it is his "duty," implying strongly that the German sporting concept of *Waidmannschaft* does not recognise racial distinction. "He was one of ours!"⁴⁰

To understand elephant hunting in this period one first must understand elephants.⁴¹ Our contemporary visualisation of African elephants is in terms of a large group, a mixture of adults and juveniles, traversing a relatively open savannah terrain. Such groups—led by matriarchs—did exist in the South along the Mbaragandu and Luvegu river systems. However, the sociology of elephant herds dictates that males exist by themselves for most of the year (specifically during the dry season) in small bachelor groups of two to four adults at some geographical distance from the matriarch-led groupings. The bachelor groupings in the South preferred the thickets along the upper Mbwenkuru River—and it is very specifically these male animals that we are considering in this essay. The concentration of our hunters on this area was based on commercial rationale; this was a source relatively close to the coast and a source that—compared to samples coming from deeper in the interior—seemed to produce ivory of consistently larger weight and consequent higher profitability.

The Mbwenkuru thickets offered a wide variety of food for male elephants during the dry season as well as welcome shade from the fierce sun. The upper reaches of the river also offered a convenient and reliable source of water from at least five extended pools during the dry season. The daily rhythm of the interaction between thicket, river, and bachelor groups was predicated on a particular fact. These standing pools of water had

concentrations of insects that were particularly irritating to elephants so that the animals preferred to drink and wash during the hours of darkness and then retreat steadily into the thickets until they had found a shaded spot to doze through the hottest part of the day. This was thought by hunters, both African and European, to be the optimum time to engage an elephant, the time when they were stationary and least alert. While pursuing male elephants in this environment, hunters faced two distinct dangers, and to survive these dangers a new model of hunting needed to be developed/adapted, one that we will refer to as the “Mbwekuru model.” In organisational terms it meant creating a team of three distinct units: a “kill” unit (ideally comprising no more than three people), a mobile support unit, and a base camp unit.

One of the two primary dangers to hunters is not immediately obvious, but it relates directly back to the cautionary tales considered earlier in this essay. Hunters on the Mbwekuru were frequently in the position of starting the chase several hours after the elephants had departed the river pools in darkness. To have any hope of catching the elephants at the optimum time the kill unit needed to travel fast. To travel fast they needed to travel light. That meant carrying minimal water and food supplies and doing so during the hottest periods of the day. This unit typically consisted of the guide, the “gun”, and the gun-bearer. To perform their task they needed to be in top physical condition. (Von Hassel came from a background of high-performance athletics; Knochenhauer and Sutherland systematically exercised at their base camps.) If this advance unit reached their expected rendezvous to find that their quarry had departed, they could elect to continue the pursuit. In doing so the risk to their survival increased exponentially. Sutherland tells one tale in which his kill unit becomes so extended that on its retreat it had to abandon its guns to conserve enough strength to make it back to the support team. In another story, at the conclusion of a kill, he is so consumed with thirst that he attempts to chew the leaves of a poisonous plant. He is physically restrained by his gun-bearer, who then cuts down the water-filled *ntamba* vine to provide emergency water rations. In summary Sutherland would say “the trying ordeal of thirst is one frequently suffered in greater or lesser degree by the elephant hunter and his men.”⁴² Knochenhauer was himself introduced to the *ntamba* vine by Musa on a day when his team was assailed by “unbearable” thirst. He noted that thereafter they were often (*hundertmal*) forced to have recourse to this plant.⁴³ It is also important to emphasise simple innovations in the secondary support team, which adapted containers to carry substantial amounts of water. It is not clear whether this was a local innovation or a copy of the techniques recently developed by the caravan water carriers traversing the new central route across the Kilwa district.

The second more obvious danger was the elephant itself. Male elephants could be highly aggressive under attack and they were not distracted by responsibilities to protect juvenile animals. The nature of the thicket environment also meant that engagements were often at short-range. The counter to animal power was twofold. The first was the well-drilled expertise of a kill team that could approach silently to close range guided by touch and hand signals, and a team that also possessed interchangeable skills. The second was firepower. It might seem obvious that Europeans might have access to

superior weaponry but Knochenhauer encountered some significant issues in his initial season. He had decided to make the Model 88 his weapon of choice. This rifle was the standard German military weapon between 1888 and 1898, manufactured by a range of companies and generally ubiquitous in Europe and parts of Africa.⁴⁴ In short, it did not require a huge capital investment. However, it proved to be spectacularly ineffective against Mbwemkuru bull elephants; time after time they absorbed a fusillade of shots and still escaped. Years later Musa was to complain bitterly to von Hassel about the ineffectiveness of their weaponry in this first year.⁴⁵ In the following season Knochenhauer eventually turned to the craft workshops of Carl Gründig in Dresden for a more powerful weapon. What he purchased was a double-barrelled, breech-loading smoothbore using massive cartridges charged with black powder. It was heavy, noisy, and smoky—with a tremendous recoil. (This is the weapon that von Hassel duplicated in 1903 as well as acquiring an even more powerful model.) We know less about the early hunting arsenal of Sutherland, but we do know that he started with the fewest financial resources.⁴⁶ Given his frequent mention of .303 rifles he almost certainly used the Lee-Enfield firearm introduced into the British Army in 1888 or the Lee-Enfield successor (introduced in 1895). He was as scathing of these .303 weapons as Knochenhauer was of the Model 88. It was only in 1904 and again in 1906 and 1909 that he could afford to buy specialised weapons, in this case from the British firm of Wesley Richards.⁴⁷ All of these weapons were, in the words of a contemporary observer, “hand cannons”; they were the most powerful weapons in private hands in southern German East Africa.⁴⁸ Sutherland had killed over 450 male elephants by the time his book was published in 1912; his entire career total exceeded more than one thousand. Knochenhauer, despite his reputation as one of Germany’s most famous elephant hunters, had only killed fifty-six male elephants by the time of his death in 1900. There is additional detail in Sutherland’s 1906 technical specifications to Wesley Richards that is interesting and relevant to the Mbwemkuru hunting zone. He specified a short barrel length in his new weapon, noting that longer lengths are “extremely awkward to manipulate in bush country.” We don’t have written documentation from Knochenhauer on this subject but we do have photographic evidence that strongly suggests that he shared Sutherland’s view. In a sense, these gun modifications were tailored exactly to suit the thicket terrain of the Mbwemkuru.⁴⁹

What we have attempted to show in this initial case study is how a commercial technical team was shaped over a period of time using African knowledge, local experimentation, and highly specific European technology. The final shape of this team was a reaction to a particular physical environment and specific gendered animal populations. Moreover, knowledge was passed from team to team over that period of time, giving us a “longitudinal” view of developments.

Digging for Dinosaurs

If elephant hunting dominates our discussion of the upper Mbwemkuru, a more elaborate scientific exercise dominates the lower reaches. In 1906 dinosaur bones were exposed just

south of the Mbwekuru River in its lower reaches, at a place called Tendaguru. This discovery led to two expeditions (1909–11 and 1912–13) by German scientists before the First World War.⁵⁰ The most public modern manifestation of this extractive effort is the huge brachiosaurus skeleton that dominates the central exhibition hall of the Museum für Naturkunde in Berlin, allegedly the largest/tallest dinosaur on exhibit in the world. The Tendaguru site is acknowledged as one of the most important Mesozoic fossil sites in the world. Having said that, this essay is not particularly interested in dinosaurs. Like our treatment of elephant hunters we are looking for an understanding of how technical teams that combined European expatriates and local Africans were constructed and how those teams adapted local resources and local knowledge to the task at hand.

It could be argued that the dinosaur expeditions introduced a new breed of European itinerant, scientists who were not directly connected to the colonial structures and who are recognisably similar to the modern academic scholars of Africa. Shifting attitudes may be a question of personalities; it may be the view of more detached scientists; and it may be a generational issue. The young palaeontologist Edwin Hennig, for example, was entranced by his stay in East Africa and was deeply interested in the personalities, the history, and the culture of the area. He had little time for local European attitudes that degraded Africans.

If one does not see admirable character traits in the African [*Neger*], then I would suggest that in very, very many cases this is the fault of the observer, not the observed.⁵¹

Like the European elephant hunters, these European palaeontologists needed African skills and African cooperation to accomplish their mission.

Werner Janesch and Edwin Hennig from the Museum für Naturkunde in Berlin left Hamburg in early 1909 for Lindi. Like most other activities in the South, the Tendaguru excavations were subject to the seasonal rainfall cycle. In the first dry season of operation the expedition opened up sixteen new trenches (*Graben*) at ever-increasing distances from the main base. Approximately six hundred loads of bones had been transported to Lindi, packed into shipping crates constructed by a local technical training school, loaded on to sailing *dhaus*, and started their journey to Berlin. This was not a piece of individual academic research; it was a major logistic operation that required large inputs of coordinated labour. Initially the expedition employed from 150 to 180 Africans as well as local casual porters who shifted bones to Lindi every Monday and shuttled additional supplies back to camp; in the second season the number of employees increased to 420 before tapering off again in a partial third season. (The sustainable number of workers was very much connected to local water supplies derived from springs.) The bulk of the workforce were local Mwera but there also Makua, Yao, Ngoni, Ngindo, Makonde, and Nywamwezi. The two European palaeontologists could not possibly personally manage the scale of operations at Tendaguru. At the beginning of their operation the Lindi District Commissioner had recommended a local man called Boheti bin Amrani as a chief overseer. It is not known what his qualifications were for this role. But what became abundantly clear was that Boheti became

the critical organisational resource for every expedition that arrived in Tendaguru over the next two decades. Boheti was to dinosaurs what Musa was to elephants, a local resource that provided local knowledge and technical continuity over an extended time-frame. The level of technical expertise extended below Boheti. As the number of trenches proliferated and dispersed geographically, a layer of site overseers was assigned. At the detailed technical level, preparators were trained and allocated to the preparation of bones for transport.

This skilled cadre of workers became progressively more confident and proactive in identifying new opportunities for investigation.⁵² Hennig found his new local experts poring over the reference works of Karl Alfred von Zittel, the classic visual representation of global fossil finds.⁵³ Indeed, recourse to the “visual” marks this expedition in new ways. Photographic equipment used to record scientific data was also used to record the individuals and the general environment of Tendaguru. It is tempting to see the visual representation of information as a European monopoly but the truth is that the scientists operated in a cultural environment—roughly between the Mbwemkuru and the Rovuma rivers—that valued, and was adept at, the visual arts. Each chapter of Weule’s contemporary anthropological study of the Lindi hinterland is introduced by a work of art from a local (and occasionally not-so-local) African, and that is just a small sample of the visual creations that he recorded.⁵⁴

As funds from Europe started to dry up in the third season the emphasis shifted to shutting down the site and transporting all existing scientific material to Lindi. Janesch left for Europe on 1 November 1911; Hennig had already preceded him. In the space of three seasons at Tendaguru, the first German expedition had investigated over a hundred localities. As Hennig arrived back in Berlin he had the opportunity to assess the expedition’s results from the perspective of the recipient museum. Some 185,000 kilograms of bone had been packaged in 4,300 loads transported by 5,400 porters to Lindi. This was just an interim accounting. Boheti bin Amrani and his colleagues would continue to excavate and ship bones on their own initiative in 1912 before Hans Reck arrived to initiate a second major phase of operations.

That second phase initially faced a dilemma. Returning African workers, sensitised to the physical environment by their experience during the first phase, brought back sightings of bones in other areas. In addition, the Tendaguru activities had achieved a territorial and international visibility. As a result, European travellers in German East Africa increasingly added their own observations. The Berlin museum was, however, now reduced to one scientist in the field and had to make a decision about priorities.⁵⁵ That decision was to detach Hans Reck to concentrate on wider opportunities, investigations that led him increasingly northwards in the colony as well as shifting his attention away from dinosaurs towards early human habitation in East Africa. To help in that task he created his own small specialist team from those who had gained their experience at Tendaguru. That regional experience was now applied at a territorial level. The absence of Reck inevitably meant that the continuing activity at Tendaguru was now effectively carried forward by an African crew.

The Language that Binds

It may seem odd in an essay examining information transfer that we have not mentioned Swahili to this point but, in a way, the assumption that Swahili would be the primary communication vehicle is so prevalent in the literature of this period (as well as in modern scholarship) that it is rarely explicitly mentioned.⁵⁶ In the early nineteenth century the Swahili language was pulled from the coast far into the interior along trade routes designed to extract ivory and slaves and then wild rubber. Trade thus continued to fuel the need for a common language of communication. The German colonial administration recognised this reality and co-opted Swahili as its functional language. Indeed, academic scholars (Raddatz, Seidel, Velten, von Illaire) were quick to recognise the commercial potential of basic Swahili primers, and these were being produced and advertised as early as 1892. Missionaries in most areas also recognised its utility for proselytisation. The UMCA, with its headquarters in Zanzibar and its major outpost at Masasi in the Lindi district, was a pioneer promoter. Its production of the *Handbook of the Swahili Language* in 1870 was a major academic landmark for the language.⁵⁷ When the Benedictines of St. Ottilien (following Hartmann's 1893 foray up the Lukuledi) rapidly established an extensive network of schools in the South, they used nothing but Swahili as the language of instruction.⁵⁸

Swahili was the common language of communication, but it was also critical to a more formal theatre of association—the *shauri*, the public act of mediated negotiation that was common in many East African societies. Indeed, Pesek has recently assessed the *shauri* in the light of European-African knowledge transfer in German East Africa, from the early exploratory period to the introduction of German local administration.⁵⁹ Within the context of the Tendaguru enterprise, the *shauri* was also an embedded daily ritual. Before we discuss this further, it is necessary to backtrack slightly. Hans Reck may have been the only German scientist assigned to Tendaguru in the second phase, but he was not the only German. He was accompanied by his wife, a remarkable individual with her own exploratory background.⁶⁰ In addition to a variety of administrative tasks she performed in the absence of her husband, she was gradually introduced to the leadership of the *shauri*. “Ah, the *shauri*,” she bemoaned, “the delight of the blacks, the bane of the whites!”⁶¹ The leadership of the daily *shauri* did not have to have European oversight; Boheti and the camp overseer also periodically took this role, but both African team leaders strongly encouraged the regular presence of a European. Within the expedition community this institution provided a more nuanced layer of integration between local resident and itinerant stranger, something different and more intimate than the commercial relationship between employee and employer.

From the perspective of Germany in 1912, the young scientist Hennig could make the following dedication to his African colleagues:

Without their adaptability and skill, it would have been impossible, with the presence for the most part of only two Europeans, to develop the excavations to the degree that has occurred. Our black team (*schwarzen Landsleute*) was the most important factor in the external conditions under which this expedition has operated.⁶²

It was in many ways an echo of von Hassel's statement about the paramountcy of local knowledge and local experts in elephant hunting.

Bridging the Century

In 2007 a palaeontological researcher in Europe isolated a Late Jurassic sauropod species from a small sample of bones that had been originally excavated at Tendaguru; he named it *Australodocus bohetii*. Boheti bin Amrani and his technical crew—one century later—were finally receiving a more formal scientific recognition for their work.⁶³ In the same year a battered hunting rifle was sold at auction for £66,000; it had originally been delivered to James Sutherland at Kilwa in 1906.⁶⁴ Both events are modern linkages back to the two case studies we have considered here. And yet we must admit that our specific technical case studies are hardly typical of the subsequent constructs of knowledge exchange exhibited in a later colonial and postcolonial landscape, much of which revolved around the agricultural economy. It would be simple to point to the disastrous Goundnut Scheme (1947–1955) where a deep-water port facility was built at Mtwara, south of Lindi, and a railroad extended towards the headwaters of the Mbwemkuru; no groundnuts ever shipped through this network because nobody bothered to consult local knowledge about the growing of groundnuts.⁶⁵ Indeed, it might be just as instructive to go back to 1909, where a party of German hunting tourists have departed the dinosaur dig at Tendaguru and continued their westward journey. They soon encountered a well-kept village of fifty huts, most of them uninhabited. Puzzled, they consulted the local administrative *jumbe*, who offered a disarming explanation. Several years earlier the *Bezirksamtman* in Lindi had ordered that the local population in this area be concentrated in a village along the Mbwemkuru. The innovative local response was to create two realities. The first was to manufacture a “Potemkin village” (a *Scheidorf* in the parlance of the tourists), a tax address that could be quickly populated in the event of the occasional official visit in the dry season. The second reality was to maintain continuity with past practices, applying the most efficient knowledge of water, soil, and population proximities.⁶⁶ It was a subversive strategy not dissimilar to some adopted in the 1970s when the Tanzanian government attempted to enforce *ujamaa* villagization policies in the same region.⁶⁷

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Notes

- * Dr. Lorne Larson was one of the first doctoral graduates in history from the University of Dar es Salaam. He subsequently taught East African history in Tanzania and Nigeria. He was heavily involved in the technical production of the *Cambridge Encyclopedia of Africa* and the *Longman Historical Atlas of Africa*. He specializes in the German colonial period and is most interested in the history of southern Tanzania.
- 1 Driver, "Hidden Histories." This discussion has also continued in more recent years with an extended global perspective. See the collected essays in Konishi, Nugent, and Bryden, *Indigenous Intermediaries*; Thomas, *Expedition into Empire*; and Raj, *Relocating Modern Science*. The link between Royal Holloway College and the RGS is a continuing one. Driver's students are continuing to uncover themes of indigenous cartography based on the collections of the RGS.
- 2 A recent study of the way in which African informants are acknowledged or deleted from early cartographic representations in Africa is discussed in considerable detail in Wisnicki, "Charting the Frontier."
- 3 For a specific example, see Isabel Voigt, "Schneckenkarte." Another recent comprehensive study of exploration and geography in all of Germany's colonies is

- elaborated in Gräben, *Die Erforschung der Kolonien*.
- 4 For a recent analysis of arguably the most famous travelogue of an East African, see Decker, "The 'Autobiography' of Tippu Tip." This can be read with the seven travelogues by East Africans published in 1901 in both a Swahili and a German edition. See Velten's *Safari* as well as *Reiseschilderungen*. Three of the seven accounts are written by one man: Salim bin Abakiri.
- 5 Rockel, *Carriers of Culture*. For the broader perspective on the nature of "exploration" in East Africa see his more recent essay, "Decentering Exploration in East Africa."
- 6 The local dynamics of the establishment of Masasi are discussed in Ranger, "European Attitudes."
- 7 The discussion around export statistics is reprised in more detail in Aas, *Koloniale Entwicklung*, 195–201. His book is essentially a wide-ranging history of the Lindi district during the German period.
- 8 In 1903 Kilwa recorded more than three times the volume of rubber exports compared to Lindi. Krajewski, *Kautschuk*, 355. A more nuanced analysis of the rubber trade in the Kilwa interior at this time can be found in Larson, "The Ngindo," more specifically 88–91, 95–7.

- 9 Behr, "Lindi," 115. The entire article is a useful survey of Lindi's economic activities around 1890.
- 10 There has been extensive re-evaluation of this conflict in recent years. See Giblin and Monson, *Maji Maji*, as well as Becker and Beez, *Der Maji-Maji-Krieg*.
- 11 The incident is described in von Behr, "Die Wakua-Steppe."
- 12 The story of these two early (and quite different) German travellers is considered in Heldring, *The Killing of Dr. Albert Roscher*.
- 13 Hugold von Behr was an ex-Prussian army officer who had joined the Wissmann Force in 1889 and had fought in a variety of engagements along the coast and in the Kilimanjaro area. Although his publications for this period do not advertise the fact, he was in the pay of Hanover rubber merchants and his trips in this period should be seen as a specific commercial reconnaissance.
- 14 Schele, "Bericht über die Expedition."
- 15 The important issue of rainfall seasonality is not discussed in detail in this essay, but see Kremer, *Schwankungen*, and Schlikker, *Regenverhältnisse*.
- 16 Hartmann, "Reise," 7.
- 17 Lieder, "Reise von der Mbampa-Bai."
- 18 He had earlier published a highly regarded history of trade routes in the South. Lieder, "Zur Kenntniss der Karawanenwege."
- 19 For shifting perceptions of travelogues in German East Africa also see Unangst, "Changes in German Travel Writing."
- 20 It is not possible to specify the exact map to which Hartmann was referring but it may very well be Richard Kiepert and Joseph Partsch, *Deutscher Kolonial-Atlas für den amtlichen Gebrauch in den Schutzgebieten* (Berlin, 1893).
- 21 Kiepert, "Bemerkungen zur Karte," 242.
- 22 The comparative effort in British East Africa is discussed in McGrath, *The Surveying and Mapping of British East Africa*. McGrath explicitly excludes any discussion of the German cartographical effort.
- 23 See the respective career summaries of Kiepert and Moisel in Schnee, *Deutsches Kolonial-Lexikon 2*: 293,586–87. That of Sprigade is described in Schnee, *Deutsches Kolonial-Lexikon*, 3: 293.
- 24 Sprigade and Moisel, "Die Aufnahmefethoden," 531. This article is a nice fit for the missing element of McGrath's book.
- 25 Siegfried Passarge was a geographer who had travelled extensively in Africa. He was Professor of Geography at Breslau from 1905 to 1908. Thereafter, he joined the newly-formed Kolonialinstitut in Hamburg and taught there until his death in 1935.
- 26 Passarge, "Die Vollandung." For a modern comprehensive treatment of German colonial cartography see Demhardt, *Die Entschleierung*. For a specific East African treatment by the same author see his "Die Kartographie des Kaiserlichen Schutzgebiets Deutsch-Ostafrika." A more recent look at German cartography and the contribution of Africans is contained in Fritsch, "Georg Schweinfurth, Knowledge and Cartography." Jureit provides an instructive, somewhat broader context, in *Das Ordnen und Räumen*.
- 27 Wolzogen, *Zur Geschichte*, 73. The firm of Dietrich Reimer was by no means constrained to cartographical products. They were arguably the preeminent general publisher of official and nonofficial publications dealing with the German colonies.
- 28 The peculiar circumstances that placed Weule in this area are discussed in Blesse, "Karl Weule" and in Zimmerman. "Counterinsurgency and the Science Effect."
- 29 Weule, *Native Life*, 373. Weule illustrates one of those maps in his book, but three of the most significant maps are fully illustrated in his 1915 article and dissected in more detail. Weule, "Zur Kartographie der Naturvölker."
- 30 This detail was stripped from the maps by the British Ordnance Survey when this

- series was translated into English for military purposes in 1916.
- 31 That map in the 1:300,000 series was named ‘Massassi,’ numbered G6, and published in 1901.
- 32 For a more nuanced discussion of these events and this period see Gissibl, *The Nature of German Imperialism*. For the impact of hunting restrictions on African populations see Sunseri, “The War of the Hunters.”
- 33 Knochenhauer’s observations of events both before and after the period recorded in his published diary are available in the many articles he wrote for the *Deutsche Jäger-Zeitung*. Oberländer’s 1899 interview with Knochenhauer, at the start of their journey from Kilwa, contains much autobiographical information on the German hunter. Oberländer, “Der afrikanische Lederstumpf.”
- 34 Sutherland, *The Adventures of an Elephant Hunter*.
- 35 Von Hassel, “Ein Tagebuch.” The final handwritten proof of this manuscript was finished in 1929 in Mahenge where von Hassel had returned as a planter.
- 36 *Ibid.*, 37.
- 37 *Ibid.*, 13. In the early 1890s Musa is already being described as “an experienced hunter and an utterly reliable informant.” Knochenhauer, “Charakteristik,” 625.
- 38 *Ibid.*, 17.
- 39 Knochenhauer, “Tagebuch,” 271–2.
- 40 Knochenhauer, “Jägdliches aus Ostafrika,” 584.
- 41 Roy Bridges could say in 1987 that “historians who have written about it [ivory] have tended to be comparatively ill-informed on zoological and ecological questions concerning the elephant, its behaviour and its natural habitat.” Bridges, “Elephants, Ivory,” 194.
- 42 Sutherland, *Adventures*, 148. Sutherland’s book has an appendix of all the local wild plants that could be used to provide water or emergency food.
- 43 Knochenhauer, “Tagebuch,” 283.
- 44 This was a government design that was contracted out to a variety of manufacturers. Although it is often associated with the name of Mauser, that company had almost nothing to do with its manufacture or design. Storz, *Deutsche Militär-gewehre*.
- 45 Von Hassel, “Ein Tagebuch,” 19.
- 46 For Sutherland’s discussion of weaponry see Sutherland, *Adventures*, 170–5.
- 47 Those interested in the history and technology of elephant-hunting weapons will find the following a useful introduction: Hoyem, “Mighty Rifles of the Past,” as well as Aborough-Tregear, “The Lore of the Bore.”
- 48 The emphasis on the “big” gun can disguise the fact that each of these hunters owned a second (or third) gun from their manufacturer of choice and this other gun was often their first purchase. This secondary gun was less powerful, usually single-barrelled, and the barrel was often longer. It was designed as the weapon of choice for other game and as backup to the big gun. It was also used in elephant hunting in more open terrain where there was the opportunity to establish a long-range precision shot.
- 49 Shorter barrels proportionally increase the recoil and put another demand on the strength of the shooter.
- 50 The core of our coverage of Tendaguru is taken from the extensive research in Maier, *African Dinosaurs Unearthed*. More recent research from the *Museum für Naturkunde* and associated Berlin universities is presented in Heumann, *Dinosaurierfragmente*.
- 51 Hennig, *Am Tendaguru*, 32.
- 52 The known overseers and preparators recorded in the second season were seventeen: Sefu Abdallah, Mohammed Keranje, Abdallah Kimbamba, Issa bin Salim, Hassan bin Seliman, Mohammed Ngaranga, Bakari Liganga, Mohammed Ntandayira, Salim Tombali, Selim Kawinga, Mohamed Saidi, Saidi Mwejelo, S. Salim, Salesi, Isa Salim, Sefu Abdallah, I. Hizza, Saa Tatu.
- 53 Karl Alfred von Zittel was the head of the natural history museum in Munich and

- arguably the most renowned palaeontologist of the later nineteenth century. The works consulted by the African overseers were almost certainly his multivolume *Handbuch der Palaeontologie*.
- 54 For an analysis of Weule's fascination with local visual arts see Aas, "Eingeborenen-Zeichnungen."
- 55 Decisions in the field were often made in relation to wider institutional, national, and global politics. To get an indication of that wider context, see Larson "Iconic Beasts, Imperial Museums," 222–32.
- 56 For a specific territorial treatment of Swahili and language policy generally see Wright, "Swahili Language" as well as "Local Roots of Policy." Also consider the more recent analysis in Brumfit, "The Rise and Development of a Language Policy."
- 57 Steere, *Handbook of the Swahili Language*.
- 58 For a recent look at that Roman Catholic expansion, see Hölzl, "Educating Missions."
- 59 Pesek, "Cued Speeches." The intriguing aspect of Pesek's discussion is that Swahili (or any other language) is never explicitly mentioned as a dominant vehicle of discussion.
- 60 For a discussion of women (including Ina Reck) in the German geoscience sector. Mohr, "Wives and Daughters."
- 61 Reck, *Tendaguru-Expedition*, 46; Maier, *Dinosaurs*, 90.
- 62 Hennig, *Tendaguru*, 10.
- 63 Remes. "A Second Gondwanan Diplodocid Dinosaur."
- 64 James Sutherland's signature firearm was purchased by Wesley Richards and today forms the centrepiece of their company museum. Aborough-Tregear, "Sutherland's .577."
- 65 A modern analysis is contained in Esselborn, "Environment."
- 66 Eckenbrecher, *Pori*, 46–7.
- 67 In addition to the context of Becker's recent history of the Tanzanian southeast, one might consider Lal, "Villagization."