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Transport Transforming Society: Towards a History of Transport in Zambia, 1890 - 1930

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Introduction

This working paper concentrates on the relationship between people and transport, and presents an overview of the manner in which transport was organised before and after the introduction of the motor-vehicle in what has become the central African state of Zambia. Prior to the introduction of mechanized transport in central Africa, the prevalence of Tsetse fly belts ensured that all goods were transported by human muscle power. The introduction of mechanized transport ruptured a fundamental aspect of the relationship between people and transport in central Africa, and effectively freed up substantial labour.

The working paper introduces the different forms of human muscle powered transport that existed prior to the introduction of mechanised transport, and discusses what the implications of the introduction of motor-vehicles were for central African societies. In conclusion the working paper concludes that Zambian rural impoverishment in the course of the 1920s and 1930s was a consequence of a change in modes of transport and the collapse in long-distance trading networks based on human labour power.

The Heart of Africa

Zambia is an African nation with a rich if sparsely documented history. Landlocked in central Africa, Zambia is a country that has the shape of a rectangle that has been squeezed in the middle. In effect it is the relic of British attempts at gaining the rich copper deposits of Katanga, Congo. The country was moulded around the core of the Lozi empire in the west and the Bemba in the east, consequently the Zambian population is a hodge podge of multiple ethnicities and cultures. Or as Andrew Roberts eloquently put it :

> Northern Rhodesia was simply an awkwardly shaped piece of debris resulting from Rhodes's failure to obtain Katanga. The [British South Africa] Company now found itself committed to ruling what amounted to not one but two huge and sprawling territories: one in the west, with communications running south, and the other in the east, with communications running further east, to Nyasaland.[1]

In the second half of the nineteenth century the British South Africa Company (BSAC) of Cecil John Rhodes was granted Royal Charter by the British government to exploit claims to the territories that form Zambia in the present. By 1900 administrators appointed by the BSAC had begun establishing administrative centres in the territories of North-Western Rhodesia –operating

from Kalomo- and North-Eastern Rhodesia –operating from Fort Jameson (Chipata). In 1911 the two territories were amalgamated as Northern Rhodesia and a single administrator, Lawrence Wallace, appointed to Livingstone on the northern bank of the Zambezi river at the site of the Victoria Falls. In the years that followed young Oxbridge graduates were selected for service in the BSAC territory of Northern Rhodesia. These young men were despatched into the interior with instructions to establish an administrative system that, in the first instance, sought to establish a system of taxation. It has been primarily through researching the reports, diaries, letters, and official correspondence of these men, that the information contained within this working paper has been gathered.

Portage[2]

> Kansanshi, January 21, 1913
> My Dear Evelyn, I am off in an hour or so – on my road to Mwinilunga. Carriers have all got their loads fixed up- I am just sheltering in the verandah while the rain runs its course. I mean to get about 5 miles out this morning – ie just to get started- to get the men out of reach of their friends & the store. Then we start tomorrow with day light.[3]

The description provided by the young Theodore Williams of his first tramp through the bush with porters, is in essence no different to those of the many other literate travellers and traders who traversed central Africa between 1600 and 1900.[4] Williams' descriptions echo those of Livingstone, who, although consistently portrayed as the single White man in Africa, was always accompanied by, and indeed dependent upon, a whole host of African, porters, guides, soldiers, traders, and so forth. Williams, and indeed, all the young men despatched by the BSAC to administrative posts on the fringes of the British Empire in Central Africa, were dependent on the good services of men and women who not only carried their goods and equipment, but also knew where to travel and how to travel.

On account of the Tsetse fly most regions of Zambia were unsuitable for domesticated animals.[5] Tsetse flies transmit trypanosomes, parasites in the blood, from one host to another. As a result of these parasites domestic animals can develop trypanosomiases, otherwise known as sleeping sickness, which is inevitably fatal. On account of trypanosomiases, draught and pack animals, such as oxen, donkeys, and horses, which were employed elsewhere in the world for

transporting goods and people, could not be used in Zambia. The consequence of this was that whereas in other parts of the world draught and pack animals could be used to transport goods, in Zambia the transport of goods and people was dependent on the muscle power of people.

The dependence of travellers, such as the young official Williams, on the skills of African long-distance porters is well illustrated by Williams description of days on the road:

> We had breakfast & got our carriers loads arranged – with the help of (thank god) the English speaking Headman ("capitao") named Matthew – a mission trained boy.[6]

As yet unacquainted with the local language Williams is dependent on the missionary taught language skills of Matthew, the man appointed as *Capitao*, -a word and position that nicely throws up the important, if somewhat forgotten, role of Portuguese traders and travellers in central Africa.

Reliant on the muscle power of porters, journeys through central Africa, and the rest of the world for that matter, covered at most 25 kilometres per day, with porters carrying loads of on average no more than 20 kilogram's. Any more unnecessarily tired the porters, and served to bring down the total distance covered.

> We are going to take about 6 days to do the 90 miles of our journey – the carriers are heavy loaded & I have had to leave 3 book boxes & one picture case to be sent for later - & we are in no hurry…[7]

Prior to embarking upon a journey the goods to be transported were divided up into loads of approximately 20 kilograms apiece. Large items, such as tusks, crates, and even pianos, would be slung under poles that would then be carried by more than one porter. Amongst things carried were people, and it is this image of colonial officials being carried through Africa followed by a long string of porters that has come down to us as the popular image of colonial Africa. People would be carried by porters in the *machila*, which has been defined in the following manner:

> This was a hammock slung on a pole (or two poles, according to weight carried), and the traveller would recline in the hammock and doze off, his only exertions being to swat flies with his switch, while the *machila* team jog-trotted along, chanting a song.[8]

Mervyn Williams, the young Oxford graduate referred to above, chose not to use the *machila* during his first tour of duty in Mwinilunga north-western Zambia in 1913 – 14. However, during his subsequent posting to Mporokoso in north-eastern Zambia, Williams made grateful, even if a little self-conscious, use of the *machila*. Writing to his family Williams described his travelling

party in the following manner:

> Monday Oct. 4th 1915, 20 carriers plus a *machila* team of ten, as is the *mos orientalis*, very oriental too it feels lounging along in a *machila* when one is fit, until one gets the edge of sensibility rubbed off, and then one orders up the *machila* from behind, flops in, and thinks nothing of the slaves who cover the miles with your weight as well as their own to carry.[9]

A further development of the *machila* was the "Bush-cart" or *gareta*, which looked much like what has become known as the Chinese wheelbarrow.[10] A single wheeled vehicle in which the centre of gravity is situated directly above the wheel with handles at both the front and the rear. Bush-carts allowed people to easily transport goods and people along footpaths along which people usually travelled in single file.[11] A contemporary of the Bush-cart described the contraption in the following manner:

> This consisted of a wooden chair, cushioned and tented, hoisted high over a bicycle wheel, with a pair of shafts fore and aft. Two Africans would 'inspan' themselves and propel the vehicle and it was a not uncommon sight to see ladies, beautifully rigged, going out to tea in them.[12]

Waterborne transport

Compared to Europe, Asia, and North America, Africa has very few navigable stretches of water, and it is only on its lakes and on specific and limited stretches of the African river systems that boats could operate with sails. There where boats could be used in Africa, they were generally dependent on human power in the form of paddlers, polers, and haulers for their movement. In Zambia prior to colonisation sailing boats were to be found on lakes Mweru, Bangwelu, and Tanganyika, where they were used in the bulk transport of goods destined for the east African coast. On the Luapula river system a series of societies and economies developed that were dependent upon fishing and use of the river for transport.[13] In western Zambia the Zambezi river was similarly used for transport though less so for fishing purposes.

The dependence of the newly establishing BSAC colonial administration of Northern Rhodesia on the goodwill and transportation abilities of the local populace is well illustrated by comments written by Hubert Harrington, District Commissioner in Fort Rosebery (Mansa). Prior to his transfer, Harrington jotted down helpful suggestions for his successor, amongst them the

advice not to tax certain sections of the local population:

> Mulewa Kisondi … this village does the ferrying of the mails across Bangweulu it is not wise to be too severe with these people in collecting tax … Because if worried for tax & being water people they bolt to Kisi and Mbawala [the islands Chishi and Mbabala that lie in the middle of lake Bangweulu] and leave no one to work the ferry which requires skilled paddlers as the crossing is 7 ½ miles wide taking 3 ½ hours and when the winds are on it it is a dangerous crossing.[14]

Similarly, on another occasion Harrington, wrote of the village of Chongolo on the Luapula river in the following manner:

> Chongolo this is a friendly old man he is the owner of the Canoes and does the ferrying across the Luapula on the Serenji Ft Roseberry road. His people are not called out for Hut tax they being water-people are no use for work. Up till 1905 he lived on the Belgian side but he has now crossed to the British side. Pay him 10/- per year for keeping the ferry open. He is and always has been most loyal. [15]

These examples indicate that, being involved in transport these people, in contrast to the remainder of the population in Northern Rhodesia, were excluded from taxation, and effectively excused from having to work for the colonial administration. Interestingly in the case of Chongolo these benefits did not prevent Chongolo and his followers from making use of the opportunities provided by the newly delineated colonial boundary between the Belgian Congo and Northern Rhodesia and crossing over into the Belgian Congo.[16]

The floodplains of the Zambezi river running from north to south through western Zambia formed the core lands of the Bulozi kingdom. The river was used as the prime transport route in the region. In the present the annual move of the Bulozi royal capital from the dry-season settlement of Lealui to the wet-season settlement of Limulunga, is one of Zambia's greatest national events and certainly its greatest tourist event. The move, referred to as the *Ku'omboka,* literally "to wade out of the water to higher ground", is initiated by the paramount chief of the Lozi, the Litunga, who boards an enormous barge powered by more than 100 paddlers, and leads the move to dry ground. The royal barge, known as the *Nalikwanda* is enormous, and belies the commonly held popular notion of African canoes as small dugout tree trunks precariously being paddled across streams. In Bulozi enormous barges ferried complete households for great distances along the Zambezi river and its floodplains.

From the moment that the BSAC sought to establish its presence in western Zambia, the company was dependent upon the services of paddlers and canoes in the employ of the Lozi kingdom. Colonial officials, dispatched to dispense colonial rule in western Zambia, would board canoes just to the north of the Victoria waterfalls at Livingstone and allow themselves to be transported upriver to their future places of residence.

These journeys upstream, being dependent on the muscle power of paddlers, took a minimum of at least ten days travelling time, before the first company administrative centre was reached and allowed for the new administrative officials to adapt to their new terrain, and perhaps more importantly allowed for the paddlers, and by extension their community, to gain insight into the habits, quirks, attitudes, and characters of the new men being sent to administer. As with the portage described above, the use of barges and canoes, illustrates once again the dependence of the colonial state being established on the muscle power, if not goodwill, of the local population.

As late as the early 1930s administrative staff sent to work in western Zambia would make use of the services of paddlers to transport them up the Zambezi river. Writing to his parents in 1932 the young Oxford graduate, John Patrick Law, wrote:

> Gerry Curtis is going to Barotseland too. To a place further north than Kalabo called Balovale on the Zambezi. He and I start off on Tuesday in a barge or rather a barge each, which is paddled by 18 natives, and takes us right up the Zambezi to the Provincial Capital Mongu. It takes us about 3 weeks to get to Mongu, and we are entirely on our own for that time, except of course for the paddlers and our native servants. We are expected to stop several times on the way up and spend a day or two at a time hunting.[17]

Law's letters home are littered with high hopes for "lots of marvellous shooting", and a close reading of the letters clearly shows that the 3 week boat trip was to a large extent used to develop the young man's hunting eye and shooting skills. Writing to his mother from Shesheke, his first port of call along the Zambezi, Law provided a fine description of the barge and trip up the river:

> The barges are about 20 feet long and 5 feet broad at the widest part, and are propelled by 16 paddlers, 8 in the bows and 8 in the stern. Amidships there is an awning made of rush mats, and under this we recline, side by sides. All our kit is packed in behind us, or in the other barge, while our boys are perched on the top of the luggage. Its really very comfortable and perfectly cool, and the smell of native hasn't been noticeable yet! It's the

> most amusing and primitive way of travelling and I never realised that such a means still existed. On a good day's run you cover about 30 – 35 miles, but we haven't averaged this, as our little excursions after game have taken up time. We usually camp about 6 p.m. and move off about 8 am, but we are going to try now, and get off at 6 am and stop at 4 pm, as then we shall be able to get some shooting in the evening! [18]

Although Law and his colleagues did not manage to leave at six a.m., a letter written to his father two weeks later at Senanga, provides a fitting description of the travel upstream, as well as the manner in which the young administrative officers whiled away their time and came to be introduced into their new field:

> We start off every morning in the barge at 7 am, having been called at 6, eaten a few biscuits and drunk a cup of tea, and then we paddle till 11, when we stop for an hour and have a meal. Then we go from 12 – 4 pm and camp. As soon as we get into camp Gerry and I dash off with guns and rifles and hunt until it gets dark about 6.30. When we get back we have a bath and then a huge dinner – once by mistake we had 5 courses! This is the bald outline of our day, and though it may not sound it, it really is a marvellous life. When you're in the barge you can read, fish or pot cormorants with the .22, and then in the evening you can shoot, and when you go out you have no idea what you are going to see – buffalo, buck, geese and duck, partridges or guinea fowl.[19]

This form of travelling, which has within it all the elements of the best of British *Boys Own* narrative style, ensured that by the time the young men arrived at their places of posting, they would have formed their own ideas regarding those they were to work with.[20] Referring to a young Nyasa man, who had been seconded to them by a timber camp manager, Law notes that he is:

> … a far better hunter than these Barotse, in fact he is really wonderful and as keen as mustard. He is very quick at seeing game and is truly amazing in the way he gets you up to them. The Barotse seem cheery souls, but they are a bit lazy, and are slow hunters.[21]

The long journey upstream, which fulfilled the necessary conditions of British ideas regarding their departure from the civilised world, would have brought about a change in the manner in which these young British officials saw and thought of the world around them. Having undoubtedly read Conrad's *Heart of Darkness*, the long trip by the young men away from what they would have seen as the last outpost of civilisation at Livingstone, would have fulfilled all

the ideas and notions that they might have had regarding their mission and role in Africa. At the same time it is highly unlikely that they were ever consciously aware of the fact that they were in turn dependent on the people to whom they had been dispatched to govern.

Whilst the young British officials formed their ideas, at the same time their fellow travellers and paddlers would have formed their own ideas regarding the new recruits. It would most certainly not have been lost upon the Africans that the young representatives of the British Empire were dependent for their every wish, whim and need on the goodwill and assistance of the Africans travelling with them. In writing home, Law admits as much when he combines the positive qualities of hunting with the ability to purchase supplies, when describing the messenger accompanying their party:

> The messenger who is escorting us is a very good lad and quite keen about hunting . He also buys us eggs and milk for which we pay in salt, which is more prized than money up here.[22]

The words of Law, Williams, and their fellow administrators illustrate clearly the dependency of the young administrators operating on the very fringes of the British Empire upon the goodwill and cooperation of the local population. By and large, colonial officials operating in the remote areas of Zambia in the 1920s and 1930s were, by virtue of their extreme isolation and dependency on local populations for transport and communication, consistently limited in their power, and far from the traditional popular image of an all powerful colonial tyrant.

Draught Animals and Tsetse Fly

As noted above, in most areas of Zambia, the use of draught and pack animals was not possible on account of the Tsetse fly and Trypanosomiases. Nevertheless in some of the south-western districts of Zambia cattle could be safely pastured, in these areas all forms of animal traction were the norm. Within the Bulozi kingdom, where cattle could be pastured, the use of ox-wagons, the norm elsewhere in southern Africa, was not common, primarily on account of the deep Kalahari sands that made the dragging of ox-wagons through the sand particularly difficult. Instead, in those areas where the sand was too deep, people made use of sleds specifically constructed for the purpose. Old dugout canoes that were no longer capable of being used on water were also put to use as sleds.

Although Tsetse fly was lethal to all domesticates, large numbers of African wild animals

were immune to Tryposonomiases. Not surprisingly there were attempts to domesticate wild animals in the search for draught and pack animals that would be unaffected by tsetse flies. Jared Diamond has noted elsewhere that it appears as if across the world all animals that could be domesticated, have indeed been domesticated.[23] Nevertheless attempts, all of which eventually failed, were made to domesticate animals that were resistant to Tsetse.

> "…someone in Fort Jameson once thought it would be a good thing to train zebra to pull the Administrator's carriage. A certain chap named Toby was given the task of training four spanking zebra which were reputed to be tame. After much trouble and patience one of the zebra bit him and nearly tore the muscle out of his arm. This was too much for Toby. He shot the lot."[24]

A direct, even if unexpected, consequence of the presence of Tsetse flies and trypanosomiases and the consequent absence of draught animals, was the absence of roads suitable for wheeled transport. In contrast to those parts of the world where draught animals could be used to lug carts, wagons and the like, Northern Rhodesia had a near total absence of wagon trails and roads suitable for wheeled traffic. By and large prior to the advent of petrol driven motor-vehicles no roads had been made suitable for wheeled traffic. Consequently no motor traffic was possible until such roads had been made. In contrast to other places where forms animal traction had initiated and developed roads suitable for wheeled transport, and where the advent of motor vehicles led to the rapid appropriation of these roads, to the surprise and annoyance of many incoming colonial officials roads were absent in Northern Rhodesia.[25]

Steam Train

The train has had a tremendous impact on societies across the world. In 1905 the Railway Bridge across the Zambesi river at the Victoria Falls was completed. Henceforth the territories that would make up Zambia came to be linked by rail to the harbours of South Africa and Mozambique. By 1909 the railway had been completed between Livingstone and Ndola, with a branch line continuing into Belgian Congo at Sakania and on to Fungurume. Hereby the newly emergent copper mines of Katanga came to be directly linked to the harbours of southern Africa.[26]

However, for all of their power and capacity, the sad truth is that trains are always limited

by the line of rail. That is, unlike cars, trains are unable to make detours to collect or deposit goods away from the line of rail. Although the railway line, linking as it did the centre of Africa to the harbours of South Africa and Mozambique, meant a tremendous reduction in travelling time for anybody living along the line of rail, its impact petered out at distances that were more than a day's walk to the railway. The increase in costs entailed in transporting bulk agricultural goods to the line of rail cut profits and ensured that there was a direct relationship between distance to the line of rail and profitability, a fine balance between profit and ruin. Farmers and colonial administrators were well aware of the implications, as is aptly illustrated by the following example:

> …camped at Harvey's farm …– 13 thousand bags of maize for a crop,… 100 acres of spuds in the ground and 50 acres of wheat & 90 dozen eggs going to market every week. But of course 22 miles from the rail cuts down profits.[27]

The railhead was effectively the terminus and gateway to the outside world. Beyond the railhead goods, passengers and post had to be transported by other means and in the absence of roads by foot. In the absence of any effective means to transfer goods, such as agricultural products, from farms to the line of rail, the development of agricultural produce remained limited to what could be consumed or traded locally, with the exception that stock could be walked to market. In the late 1930s the young District Officer John Walter wrote to his wife and noted what it meant to be away from the line of rail:

> Everybody says I shall like Kasama – and it is not very lonely as there are about 20 Europeans there altogether; and a good mail service. (only 2 or 3 days to railhead) Sharland's letters will take about a month to get to the railway from Mankaya in the centre of Barotseland.[28]

Steam Traction Engines

In the absence of railroads and in the presence of trypanosomiases there was one mode of transport in central Africa in the early 1900s that could and was used for bulk transport, the steam traction engine. Essentially a locomotive designed to run without rails, the steam traction engine was a product of industrial technology normally associated with English country fairs and certainly not central Africa.[29] Steam traction engines had been used to ferry troops in the Anglo-

Boer war (1899 – 1902), and as early as 1904 steam traction engines had crossed the Kafue and been put to work in central Africa.[30] The British South Africa Company used these vehicles to transport collected rubber from the Bangweulu and Luapula to the line of rail.[31] Similarly the copper mine being run at Kansanshi in 1913 used a steam traction engine to transport ore to the line of rail at Mbaya in the Belgian Congo.[32]

In the early part of the Twentieth Century the men who operated steam traction engines were accorded a status akin to that which computer technicians enjoyed in the booming 1990s and financially rewarded accordingly. Theodore Williams, an Oxford graduate and probationer for the BSAC administration in Northern Rhodesia in 1913, could not help but grouse in a letter that:

> C.G. Dawson the traction engine driver gets 900 pounds a year – but of course he is a fairly skilled mechanic.[33]

Considering that Williams with a university degree was at that stage earning no more than 250 pounds a year, Dawson's skills must have been highly regarded.[34] In addition, Kansanshi mine must have been highly profitable if it could afford to pay such wages for the transport of its ore over a distance of 90 miles to the line of rail at Mbaya.

Though very powerful and impressive steam traction engines were scarcely suitable for use in the African bush. In the absence of paved all-weather roads, journeys that took 3 days to cover in the dry season could take more than a month to complete in the rainy season. Early in 1913, as the rainy season was getting into its stride, Theodore Williams jotted down the following in his diary:

> Met Dawson traction engine – both inches deep in mud – the engine 2 or 3 feet deep in the road now and then – 2 mile short of Katandoma river – a cheery lad, and so pleased with life and the country – bucked to meet someone to talk to after a month on the Baya road with his engine.[35]

Dependent upon passable roads, a constant supply of clear water, and dry fuel in the form of wood, steam traction engines were far from the independent means of transport that they may have appeared to be in the first instance. Instead the steam traction engine and its driver were totally dependent upon hordes of labourers to ensure a constant and steady supply of clear water, dry fuel, and passable roads.[36] The recruitment of the labour necessary for the logistical support

of a steam traction engine is something that still needs to be investigated, but a superficial reading of the documents indicates that in the progress of one expedition between Fungurume and Sankisia, approximately 1000 labourers were employed to enable the passage of two steam traction engines.[37] The social costs of steam traction engines in central Africa in terms of labour extraction needs to be calculated, but that it was substantial cannot be doubted.

Bicycle

> "…a broad path through the trees, with the enormous ruts a traction engine makes – no macadamized roads in this country. We had a bike with us, & I'd have used it a good deal in places – but generally let Matthew push it."[38]

> "A *dona* who had a bicycle employed a special boy to accompany her on her rides. He carried a long forked stick. When the *dona* came to an incline she would say *kanka*, and the boy would press his forked stick against the back fork and push. He would have to keep up all the time, down hill as well as up, which wasn't easy when the *dona* decided to do twelve miles per hour down hills".[39]

Apart from the steam traction engine, another product of industrial technology that transformed society and made its way to central Africa prior to the arrival of the motor-car, was the "safety bicycle".[40] In contrast to the steam traction engine and the gleaming limousines of the 1950s and 1960s, bicycles continue to provide reliable transport throughout present-day central Africa and Zambia.[41] In the 1880s safety bicycles revolutionised societies in northern Europe and North America. Suddenly from one day to the next people on a bicycle could easily cover three times the distance they could normally cover whilst walking. Whereas previously people limited their activities to a radius of approximately five kilometres, people suddenly extended their activities to a radius of 15 kilometres. The transformation brought about by the bicycle in human society has led the British geneticist Steve Jones to argue that the bicycle is the most important event in recent human evolution. Work conducted by Jones indicated that on account of the bicycle marriage patterns changed as the choice of potential marriage candidates expanded and were no longer limited to the immediate environs of the place of birth.[42]

The British South Africa Company provided its officials with bicycles. After a short spell of work in Nyasaland, one such official, Frank Melland, careened his way into Northern

Rhodesia in late 1901:

> Two miles of the Abercorn road then we struck off cross country I should think it was a rough riding as I ever want to do though much more enjoyable and certainly more exciting than a *machila*, I rode most of the way, through scrub and over rocks, winding, as nothing but a native path can wind – but sometimes the path was too bad even to wheel the machine… I wonder what the respectable English born bike thought of it.[43]

Although Melland put on a brave face, the truth of the matter was that he arrived at his campsite covered from head to foot in soot and dust after having taken a number of falls when his pedals had struck clumps of rocks and hummocks on either side of the footpath.[44] Indeed so tumultuous was Melland's arrival by bicycle in colonial Zambia that his bicycle had, as he put it, "crocked". Henceforth he refrained from using it and much to chagrin of his carriers had himself transported by Machila.[45] Although he did not immediately succumb to the temptations of a Machila, Theodore Williams, in keeping with Melland's sentiments noted of cycling in colonial Zambia in 1913 that:

> "Still it is not quite such an obliteration of distance as is biking in England. Often there are simply too many trees across the track to make it worth while hopping off and on every 20 yards." [46]

For all of the negative experiences expressed by colonial officials in the beginning of the twentieth century, the bicycle soon developed into a popular and continuingly affordable form of transport for Zambians.[47]

Motorcycle

A development that made full use of the skills and techniques developed in both the cycle and steam industry was the motorcycle. With the development of the internal combustion engine in the 1890s many bicycle makers switched to the production of motorised vehicles.[48] By the early 1900s Motorcycles were being mass-produced in Europe and the United States. Considerably cheaper than a motor-car, and considerably more manoeuvrable on the trails and footpaths of colonial Zambia, the motorcycle soon became the preserve of the wealthier colonial officials.[49] By 1917 well to do colonial officials had taken to puttering around on a wide variety of motor-cycle models that had been manufactured British manufacturers such as BSA and Norton. The motorcycles were transported to Northern Rhodesia in crates that were portaged to their final

destination. Writing of an officer in charge of bulk stores destined for Nyasaland and Northern Rhodesia in the settlement of Tete on the Zambezi river in Mozambique, a chronicler noted that:

> He thought it would be a good idea to take them out of their crates, inflate the tyres, put the gear into neutral and let two porters push the bikes to Fort Jameson [Chipata, Zambia]. … [unfortunately] long hills were too much temptation for the porters, and many were the claims for damaged machines. [50]

Given the sheer mass of motorcycles, it can hardly be considered surprising that porters should have chosen to attempt to ride these vehicles whenever the opportunity presented itself. Anxious to avoid damage to his new motor-cycle, the chronicler describes how a White Father went to the trouble of personally trekking down to Tete to take delivery of the machine and to ride it back to Fort Jameson. However:

> On the way back he ran into a herd of elephants. He threw his bike down and retreated hastily into the bush. One of the elephants came up to the bike to sniff it. His trunk came into contact with the hot cylinder and in a rage he stamped on the machine and trampled it into a tangled heap of metal.[51]

In contrast to the bicycle, the motorcycle does not appear to have had a lasting impact on Zambian societies. The reasons for this are manifold, and include the following examples. Effectively the motorcycle continued to be the expensive plaything, with very little practical value, of the elite. To be sure one could attach a side car, but on the whole motorcycles are almost by definition the epitome of individualism. Furthermore, in contrast to bicycles, motorcycles are not machines that are easily pushed with a heavy load. That is, even though a bicycle may loose its pedals and chain, it can still be and often is used to transport goods. The same does not hold for motorcycles. When they breakdown, or when they run out of fuel, the engine literally becomes a deadweight and a hindrance.

The first Automobile

One of the less controversial of the many settler heroes of German colonialism, Paul Graetz, a.k.a "Bwana Tucka Tucka", introduced the first motor-car to colonial Zambia in 1908, when he drove across Africa between 1907 – 1909.[52] Graetz's continuing popularity is such that re-runs of his trip with replicas of his vehicle and modern 4x4s are organised by tour-operators working

out of Germany, and whole websites are devoted to Graetz and his exploits.[53] A reading of his travelogue indicates that Graetz had his fair share of "traveller experiences", but that which was omitted from his text and commemorative texts is the simple fact that his trip would never have been possible without African labour. Graetz's trip from Dar es Salaam in German East Africa to Swakopmund in German South West Africa, was a trip that was only possible on account of extensive road and bridge building, and the portage of his petrol, by African labourers recruited to prepare the way and establish fuel dumps along Graetz's intended line of travel.[54] Stranded at the Lukakashi river Graetz had to wait for three weeks for fuel to be brought up by rail from Bulawayo in southern Rhodesia and portaged from Broken Hill to his involuntary encampment at the Lukakashi river. In keeping with the carrying load of an individual porter, the 50 gallon drum (approximately 220 litres) had to be man-handled by 12 porters. The size and weight of the load made an indelible impact on travellers on the route between Broken Hill and Mpika, and weeks prior to the arrival of the petrol rumours of the impending arrival of an enormous drum had reached Graetz at his encampment.[55]

World War One and Carriers[56]

> Incapacitation through disease among the British was 31.4 to one for the troops and 140.8 to one for the followers.[57]

The motor-car came into its own in colonial Zambia when African portage labour was unable to keep up with the demands with that most voracious and extravagant form of capital destruction, armed conflict. Many people dealing with Africa fail to realise it, yet the First World War was to have devastating consequences for the inhabitants of East and central Africa.[58] Although there was very little actual fighting on the ground in Northern Rhodesia, the territory and its people were most directly affected by the war. For four years between 1914 and 1918 the societies of what are now the states of Zambia, Tanzania, Malawi, Kenya, Congo, and Mozambique were ravaged by the effects of warfare as competing armies criss-crossed the region. Throughout the war the competing armies dragooned men into military service, and conscripted hundreds of thousands of men and women as porters, *tenga tenga*. In addition tremendous demands and strains were placed upon the ability of communities to make available food supplies for the armies. Indeed, so harsh were these demands that by 1917 there were districts in northern

colonial Zambia that were devoid of people and denuded of all agricultural produce.[59]

Recruitment for service in both colonial armies, either as soldiers or as carriers, was a very direct affair. Mel Page refers to one of his informants who noted: "They used to chase people as if they were chasing chickens", and cites a former German Askari who stated, "if they were short of soldiers they forced anyone they saw to join their forces".[60] Carrier corps made up the bulk of the armies moving through East Africa. The work of Mel Page[61], Geoffrey Hodges[62], David Killingray and others has brought to the fore the central role played by African porters in the Great War in Africa. These authors have detailed the enormous sacrifices incurred by these Africans, and have, to some extent, dealt with the impact of these multitudes of non-combatants. It has been estimated that no less than 1.5 million people operated as carriers in Tanganyika alone. The men of the Carrier Corps were believed to have died at the rate of 400 per month during part of the campaign.[63] Porters died due to a multitude of causes that ranged from being killed as a result of direct combat and untreated wounds, through to malnourishment and disease. Dr. Horace R.A. Philp who served as government medical officer during the war and was a missionary CSM doctor in peace time, has given us a stark picture of human destruction:

> Large numbers have died in base hospitals, on the roads and in the reserves after reaching home. Further, the men left for active service well and fit. Those repatriated have returned mostly physically unfit, bringing with them diseases innumerable.[64]

Carriers were young men and women in the prime of their lives, who were withdrawn from their communities at a time when these were in desperate need of all the productive capacity that they could muster. Writing of North Eastern Rhodesia where he was based during part of the war, Williams wrote to his mother:

> It is over in NER that natives have done <u>really nobly</u>: there they have not had a month's rest since 1915: if they were not actually humping loads they were being driven to their gardens to raise more food.[65]

Sir Laurence Wallace, former administrator of North-Western Rhodesia, drafted a lecture that dealt with the organization of transport in the war. It provides an excellent account of the difficulties encountered by the British:

> The difficulties were that between the nearest point on the Railway and the northern border, where the Rhodesian Column was concentrated for its advance into German East

> Africa there were 600 miles of country covered with tsetse fly, in which no domestic animals could live and therefore no sustained ox, horse, mule or donkey transport was possible. Because of this no roads had been made suitable for wheeled traffic and motor traffic was not possible until such roads had been made. We were therefore at first limited to native carrier transport.
>
> When war broke out some native troops were immediately sent through to the border, by various routes in order to assure food on the way, but to send the first European troops through we were forced to use ox-waggon transport knowing that the oxen could not live much longer than the outward journey, and certainly not long enough to bring the empty wagons back. Altogether 30 wagons with about 100 tons of stores and 600 oxen started and just got through, though none of the oxen survived the journey.
>
> During 1915 the country had not been quite denuded of its share of food and we were able by carrier transport to keep the troops in supplies, but we had to prepare for heavier demands and motor transport seemed the only way out.[66]

From late 1915 onwards British forces were commanded by Major-General Sir Edward Northey, whose first and most pressing problems of command related to transport.[67] Northey was informed that "in this country, except on a few bits of road south of the Frontier, all transport had to be done by Carriers, who consume as much as they carry in one month".[68] Administrator Wallace, who had sought to ensure the effective supply of goods and materials to the front by carriers, worked out the capacity per distance of carriers:

> The average rate of travel for carriers, … is about 15 miles per day. The net load carried is 60lbs to which has to be added cooking pots blanket etc. Their rations are 2½ lbs of meal per day. A carrier would therefore eat the full weight of his load in 24 days, that is on a 12 days journey outward (180 miles) and 12 days return.[69]

Clearly the transporting of goods to the front 600 miles away could not be effectively done by carriers. Indeed, Wallace calculated that should he wish to ensure the supply of 1 ton per day at the front 600 miles from the railhead he would need no less than 71.000 carriers.[70] At the time there was a taxable population of approximately 120,000 in Northern Rhodesia of which approximately 80.000 could be recruited. However, "it was found that if more than one third of these away at a time cultivation suffered, with a consequent loss of the food we so much

wanted".[71] Not surprisingly, upon assuming command Northey sought to engineer a shift in supply from carriers to motor transport where possible:

> I am now arranging for carriers to enable mobile forces to get forward and for the making of roads for motor traffic for forward and lateral communication. [72]

In the course of 1916 a road was cut and bridges built from the railhead at Broken Hill to two points on the border. Model T Fords were obtained via South Africa and converted into lorries able to carry 700 lbs plus a driver and his kit. The road was an earthen track, with exception of approximately 80 miles of sand where, "wheel tracks in the sand were filled with soft stone and the cars ran on two slightly sunken ribbons of Macadam thus formed". [73] Although the Model T was able to transport far more than carriers the British continued to rely on carriers until the end of the war. Nevertheless, as a quick glance at the numbers makes abundantly clear, the introduction of the Model T transformed the manner in which transport came to be run in colonial Zambia.

The Socio-economic Impact of the Introduction of Motor-cars

One of the first things to happen following the introduction of the motor-car was that carrier transport came to be superseded by motorised road transport. Henceforth goods were no longer carried from A – B by the long lines of porters so beloved of cartoon depictions of African caravans and European explorers in the dark continent. Instead of a string of porters each carrying a maximum of 60 lbs on their shoulders for an absolute maximum of 15 miles a day, the Model T easily transported tenfold the amount of a porter and for far more than 15 miles a day.[74]

The immediate result of the introduction of the motor-vehicle was an economic decline for most of the communities living along the line of travel. Prior to the introduction of the motor-vehicle the portage of goods ensured that in effect the market came to people in the villages along the line of travel. A reading of the travel reports for the routes of travel throughout the areas that make up present day Zambia indicates that along the established routes there were villages and settlements scattered along like beads on a string every 15 to 25 kilometres.[75] That is, settlements were spread along the route of travel at distances from one another that corresponded to a days walking journey for a laden caravan. Work has recently been conducted by Minetti on the efficiency of postal services based on horses; services such as the famous U.S.

pony express and the pony relay networks of the Roman and Chinese empires. This work indicates that irrespective of time and place, be it the American West or Asia Minor, all of these services based on horses came to a similar average travelling distance (20 – 25 kilometres) for horses prior to their being replaced by new horses.[76] Undoubtedly the same holds true for people.[77] A thoroughly unrepresentative survey of guide books for contemporary recreational walking routes in western Europe indicates an average walking distance of 25 kilometres a day.[78]

Within colonial Zambia district officials regularly went on tour. In the course of these tours taxes would be collected and attempts were undertaken to administer colonial rule. The District Notebooks stored in the National Archives in Zambia list the distances covered and the number of days taken on these tours. An overview of the available District Notebooks indicates the correlation that exists between time and distance of district tours. An analysis of 27 district tours within the District of Broken Hill indicates that between 1914 and 1925 an average tour lasted 18.5 days, and that a distance of little more than 194 miles was covered on an average tour. That is for every day on tour the average distance covered was 10.49 miles (16.79 kilometres).[79] The average distance travelled on travelling days will have been higher than the average, given that rest days were observed, and that there were days on which the colonial officials conducted their official business.

Whereas in the past, that is prior to the introduction of the motor-vehicle, day journeys would average around 20 kilometres a day, trips by motor-vehicle were now limited to the condition of the road and the length of the day. In consequence this effectively meant that from one day to the next, day trips more than doubled. Journeys that had previously taken four days of walking were now completed in a single day.[80] The distances covered in relation to days on tour changed dramatically.[81] Whereas, prior to the introduction of the motor-car, the distance that had been involved in making tours had been studiously listed, distances suddenly appeared to have lost the importance that it had previously held. Indeed, the District Notebook for Broken Hill ceases to make mention of the distance covered on tour following the introduction of the motor-car in 1925.[82]

Caravans of porters brought goods, people and services, to the villages and settlements they passed through. In addition these caravans also made use of the goods and services that were on offer in these settlements and villages. With the caravan trade, prior to the introduction of the motor-vehicle, it can be stated that in effect the market walked its way to the villages and

settlements along the line of travel. In practice this meant that sick or lame porters could come to be replaced by new recruits, and fellow travellers could come to be replaced by others. More often than not, caravans did not consist solely of porters, but also of family members and servants who accompanied the porters as cooks and general taggers on, but also people merely travelling from one village to the next and seeking the company and security of a large travelling party. In effect the arrival of a caravan of porters and travellers heralded the opportunity to sell and trade all manner of goods and services for villages and settlements along the route of travel. With the introduction of the motor-vehicle villages and settlements situated at distances of 15 to 20 kilometres along the line of travel were passed by in favour of settlements further along the line. The villages and settlements that formed the service nodes (the beads on the chain) along the line of travel became less and further apart, as motor-vehicles sped on by.

Throughout the 1920s and 1930s colonial officials made mention of the fact that fields and villages were being abandoned along the route of travel. However that this decline could be related to the burgeoning increase in motor transport appears not to have been immediately recognised by the colonial administration. That Motor transport, the epitome of modernisation, could be related to rural decline was not acknowledged. Indeed, the work of Audrey Richards commissioned in the 1930s, dealt specifically with the perceived decline in agricultural production and argued that this related directly to the mass migration of young men to the burgeoning copper mines of the Copperbelt.[83] Some of the colonial officials shared this analysis of what was happening. A fine example of this is provided by Spencer Reeve Denny who was stationed in the Kasempa district in the late 1920s and wrote the following in a letter home:

> I believe it is a fact that the gardens are much smaller now than in the years previously. And this is not to be wondered at, when none of the men are there to do the manual labour of the gardens. The young men may return from the mines in July and August, when the beer is plentiful but that is just the time when the trees have to be felled and burnt and the ground tilled. And that is man's work. But having done six months at Nchanga they refuse to work still more at home. Consequently the extent of cultivated land is reduced. Unless some rule is made that so many men must remain in a village during the important seasons, there is going to be a bad famine in the next few years. As it is in many villages the inhabitants are existing on honey and mushrooms and odd vermin that they manage to trap or spear and now and then a buck or two that one hunter

may shoot.[84]

In addition colonial officials complained bitterly about the difficulty and expense of finding labour in their districts and blamed this on the mines, which they claimed had spoilt the market with the wages and conditions on offer.[85] The work of Richards, and later Moore and Vaughan, both see the development of the mines and their rapacious demand for labour as being responsible for the changes being wrought in what is today the Northern Province of Zambia.[86] However, it could also be argued that the ending of the caravan trade freed up substantial amounts of labour for the mines. The reduction in employment opportunities (in terms of portage, agricultural produce, and services) that was brought about by the cessation of portage caravans, led to a freeing up of labour for the newly emergent mines. That is, that it was not so much the mines that were draining the hitherto vibrant rural communities that had allegedly existed, but that it was the ending of the caravan trade that forced rural inhabitants to look for trade elsewhere, and in this instance found employment in the mines many kilometres away from their original home villages. In combination with motor-vehicles, which had been first introduced in 1915, a vicious circular process started functioning in colonial Zambia from the mid 1920's onwards when the copper mines of the Copperbelt went into production. As the mines drew labour, it further limited the amount of labour available for transport, which in turn furthered a reliance on mechanical transport, which in turn further decreased a demand for transport labour.

In summation

The introduction of new forms of transport into central Africa from the 1890s onwards greatly transformed African societies. The introduction of the train in the first decade of the twentieth century allowed for the industrial development of the copper mines in Katanga, Belgian Congo. Within colonial Zambia the impact of the train was limited to the line of rail, however the Katangese copper mines which became operational in 1908 had an impact throughout central Africa as the mines began to attract labour. The further products of the industrial world, the bicycle and the steam traction engine, impacted on the central African societies. The steam traction engine required enormous amounts of labour for wood, water and road-building along the route of travel, a reliance on African labour that severely curtailed the operational

possibilities of the steam traction engine. In contrast, the bicycle had a lasting impact on the manner in which goods and people were transported in central Africa. Bicycles, dependent as they are upon human muscle power, continue to form one of the prime forms of transport in central Africa throughout the 20th Century. The motor-cycle, in contrast to the bicycle, does not appear to have had a lasting impact upon transport in central Africa. The introduction of the motor-car, coming as it did when the effectiveness of human caravan portage was found to be wanting, radically transformed central African transport systems. Effectively from one day to the next the manner in which goods and people were transported over distances greater than 25 kilometres was radically transformed. Settlements and villages that had lain at walking day intervals along the route of travel were ignored and came to be abandoned for "nodal points" more fitting for the new form of travel. Essentially the ending of caravan portage brought about a decline in employment and marketing opportunities for rural populations and freed up labour that would come to be used in the Katangese and newly emergent mines of the Copperbelt. The large scale introduction of the Motor-vehicle, in the form of cars and trucks, into central Africa in the aftermath of the First World War, led to a decline in rural opportunities and heralded the establishment of Zambia's mining proletariat.

Jan-Bart Gewald
15 May 2007

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[1] Andrew Roberts, *A History of Zambia*, New York: Africana Publishing Company, 1976, p. 175.

[2] For a detailed overview of portage see, Stephen J. Rockel, "Caravan Porters of the *Nyika*: Labour, Culture, and Society in Nineteenth Century Tanzania", Ph.D. Thesis, University of Toronto 1997.

[3] Rhodes House (RH), Oxford, Williams (Theodore R.) Administrative Officer, Northern Rhodesia: Diaries, 1912 – 21. 3 vols.; letters home, 1912 – 24. 3 Volumes. MSS. Afr. S. 776 – 781. Kansanshi, January 21, 1913.

[4] See the papers and report of the conference "Angola on the Move: Transport Routes, Communications, and History" organized by Beatrix Heintze and Achim von Oppen, Centre for Modern Oriental Studies, Berlin, 24 – 26 September 2003.

[5] The standard work on Tsetse fly and Trypanosomiases remains the excellent work by John Ford, *The Role of Trypanosomiases in African Ecology: A study of the Tsetse fly problem*, London 1971.

[6] RH, MSS. Afr. S. 776 – 781,

[7] RH, MSS. Afr. S. 776 – 781,

[8] A.G.E Tapson, "Transport in the Early Days at Fort Jameson", in *The Northern Rhodesia Journal*, Vol.1., No. 6., December 1952, p. 52.

[9] RH, MSS. Afr. S. 776 – 781,

[10] Oxford, Rhodes house, Mss. Afr. S. 1919, Hayes, (Winifred M), Transport Chikawa District Nysasaland, 1936 – 39.

> A gareta was a sort of bath chair on one wheel with a couple of metal rods sticking down in front so that the gareta could stand upright when stationery. A couple of long metal rods projected fore and aft and with a man pulling and another pushing going at a slow but steady jog trot one travelled at a very satisfactory speed: the one wheel was perfect for going along narrow native paths. I had my own gareta very soon: my husband used a bicycle.

[11] Rickshaws, being two wheeled, are dependent on broad paths or lanes, and were consequently not to be found in Zambia.

[12] Tapson, Transport, p. 52.

[13] Musambachime, Gordon

[14] National Archives of Zambia, KDF 3/1 Vol. 1., District Commissioner and Magistrate, Mweru – Luapula District at Fort Rosebery, December 1906, folio 21.

[15] National Archives of Zambia, KDF 3/1 Vol. 1., District Commissioner and Magistrate, Mweru – Luapula District at Fort Rosebery,April 1908, folio 59.

[16] Musambachime has written extensively on the manner in which people in the area used the border to their advantage, Mwelwa Musambachims, "Escape from tyranny : flights across the Rhodesia-Congo boundary 1900-1930" in *Transafrican Journal of History*, 1989, vol. 18, p. 147-159. Mwelwa Musambachime, "Protest migrations in Mweru-Luapula 1900-1940" *Afr. Stud.*, 1988, vol. 47, no. 1, p. 19-34.

[17] Oxford, Rhodes Hous, MSS. Afr. S. 393, Law (Patrick John) Letters to his parents during colonial service in Northern Rhodesia 1932 – 36, 20th August 1932.

[18] Oxford, Rhodes Hous, MSS. Afr. S. 393, Law (Patrick John) Letters to his parents during colonial service in Northern Rhodesia 1932 – 36, 26th August 1932.

[19] Oxford, Rhodes Hous, MSS. Afr. S. 393, Law (Patrick John) Letters to his parents during colonial service in Northern Rhodesia 1932 – 36, 7 September 1932.

[20] Richards, Jeffrey. "Boys' Own Empire." Imperialism and Popular Culture. Ed. John M. Mackenzie. Manchester: Manchester UP, 1986. Jeffrey Richards, 'Boys Own Empire: Feature Films and Imperialism in the 1930s,' It was a form of travelling that led me to jot down in my notes, "Hunt Hunt Hunt,….".

[21] Oxford, Rhodes Hous, MSS. Afr. S. 393, Law (Patrick John) Letters to his parents during colonial service in Northern Rhodesia 1932 – 36, 7 September 1932.

[22] Oxford, Rhodes Hous, MSS. Afr. S. 393, Law (Patrick John) Letters to his parents during colonial service in

Northern Rhodesia 1932 – 36, 7 September 1932.

[23] Indeed where animals can be domesticated, such as the donkey, the animal has been domesticated on at least two separate occasions and at different locations in Africa.

[24] Tapson, Transport, p. 52.

[25] Not surprisingly a major aspect of the colonial administration's self-proclaimed civilizing mission was the building and establishment of roads.

[26] The establishment of railroads were essential to the industrialization of central Africa. The standard work on the establishment of rail to central Africa is, S.E. Katzenellenbogen, *Railways and the Copper mines of Katanga*, Oxford: Clarendon Press, 1973.

[27] RH, MSS. Afr. S. 776 – 781, Chilanga September 1st 1923, My dear mother.

[28] RH, MSS. Afr. S. 664. Grand Hotel, Lusaka, Northern Rhodesia, 16th August 1937.

[29] As a child I travelled with my father to Kansanshi, and whilst driving through the bush we stumbled upon the remains of a steam traction engine.

[30] *South Africa A weekly journal for all interested in South African affairs* May 5, 1906.

[31] Christina Lamb, *The Africa House*, London: Penguin, 2000, pp. 92 -3.

[32] RH, MSS. Afr. S. 776 – 781, Kansanshi, Friday Jan 17 1913, My dear father.

[33] RH, MSS. Afr. S. 776 – 781, Kansanshi, Friday Jan 17 1913, My dear father. 900 pounds 1913 converted into contemporary money registers at around US$ 85.000,00.

[34] The wages paid to those working on the mines continued to rankle Williams throughout his BSAC career. At a later stage in 1917 he confided in a letter: "It gives one food for thought to see men, and many of them with no more years, brains, breed, or bluff than I have at my disposal, only with a technical training of some sort, who get anything between one and two thousand a year!". RH, MSS. Afr. S. 776 – 781, British Vice Consulate, Elizabethville, 23 January 1917., My dear Mother.

[35] RH, MSS. Afr. S. 776 – 781, Williams (Theodore R.) Administrative Officer, Northern Rhodesia: Diaries, 1912 – 21. 3 vols. 12 January 1913.

[36] National Archives, Kew Gardens, ADM 123/142, contains detailed reports of the Tanganyika Naval Expedition led by commander Spicer-Simpson. Of relevance here is the use of steam traction engines and the necessity of fuel, water, and a decent road.

[37] National Archives, Kew Gardens, DO 119/918, Naval Africa Expedition, Report of Progress No. 4, Sankisia 30th September 1915.

[38] RH, MSS. Afr. S. 776 – 781,

[39] Tapson, Transport, p. 52.

[40] Safety bicycles were so called because in contrast to the "penny farthing" cycles that had existed before, with two differently sized wheels, the safety bicycles had two wheels of the same size and thus did not have the tendency to fly head over heels. For a detailed history of the bicycle see, David Herlihy, *Bicycle: The History*, New Haven 2004.

[41] The social history of the bicycle is a topic that desperately needs to be written for Central Africa and Zambia, where bicycles are used for all manner of transport. On any day of the week the roads leading into Lusaka are crowded with cyclists bringing charcoal to the urban inhabitants of the city. Recently the BBC broadcast a truly devastating piece by Tim Butcher entitled *Re-charting the mighty Congo*. Butcher's words convey the immensity of what has come to pass in the Congo:

> The Ho Chi Minh trail of Congolese survival – cadaverous men we saw by the hundred wandering the forest, pushing pedal-less bicycles laden with jars of palm oil for hundreds and hundreds of kilometers for the chance of making a few pounds by trading them for another commodity like salt. These men were on six-week round trips, drinking when they passed a stream, eating what they could scavenge in the bush, and sleeping on the trail when the sun went down. There are no shops here, no houses to rest in, just the endless forest void. "There is nothing in my home town, Kongolo – this is my only chance to feed my family,"one of the men, Muke Nguy, said before heaving his tottering bike down the trail. "What's that?"I asked, pointing at a loop of vine on his shoulder. "My bicycle repair kit," he said. The sap makes a gummy resin, ideal for mending flat tyres. I shook my head in sorry disbelief.

See also, Nancy Rose Hunt, "Bicycles, birth certificates, and clysters: Colonial objects as reproductive debris in Mobutu's Zaïre", paper in press with Duke UP. Has an extensive section dealing with bicycles in Congo.

[42] Steve Jones, *The Language of the Genes: Biology, History and the Evoluntionary Future*, Flamingo 1994. There is an indication that marriage patterns changed in northern Europe, whereas previously marriage partners had been found within a five kilometer radius, they were now found within a fifteen kilometer radius.

[43] RH, Mss. Afr. R. 192, Melland (Frank Hulme) Diary of life in north Eastern Rhodesia, 1901 – 4 3 vols.

[44] In advance of the rains and in keeping with chitimene shifting cultivation practiced by the Bemba, large tracts of the bush had been burnt to make place for agricultural fields. It is tempting, though undoubtedly un-provable, to believe that Melland's virulent opposition to and persecution of Chitemene agriculture has its roots in the dark and sooty day of his tumbled arrival in colonial Zambia.

[45] RH, Mss. Afr. R. 192, Diary entry 6 October 1901.

[46] RH, MSS. Afr. S. 776 – 781, At another stage Williams noted:

> At other times the country is hilly and the bikes the company provides are most unsuitably high geared – considering one never wants to go faster than 5 miles an hour as one has to keep with ones walk-foot gunbearers & paths finder. I have generally made a point of walking about the first 8 to 10 miles – from 6 till nearly 9 say … after that biked as much as was likeable.

[47] In a short article Terence Ranger has discussed the impact and continuing importance of bicycles in Bulawayo, Zimbabwe, "Bicycles and the social history of Balawayo". See also, Nancy Rose Hunt, "Bicycles, birth certificates, and clysters: Colonial objects as reproductive debris in Mobutu's Zaïre", paper in press with Duke UP. Has an extensive section dealing with bicycles in Congo.

[48] Internal combustion engines are those in which motive power is derived from the explosion of vapour –usually a

petroleum distillate- in a cylinder, and are to be found in virtually every generator, pump, motor-car, train, boat and bus on planet Earth.

[49] RH, MSS. Afr. S. 776 – 781, Elizabethville, Congo Belge, 7th January 1917, My dear mother.

[50] Tapson, "Transport in Early Days", p. 53.

[51] Tapson, "Transport in Early Days", p. 53.

[52] Paul Graetz, *Im Auto Quer Durch Afrika*, Berlin: Gustav Braunbeck & Gutenberg-Druckerei 1910.

[53] http://www.bwana.de/deutsch/graetz/ind_ie.htm Following his trip across the African continent, Graetz later went on to make a name for himself in airships operating in the Dutch East Indies.

[54] National Archives of Zambia, KSD 4/1 Vol. 1, Mpika District Note Book, 1901. Entry for April 1908.

[55] Graetz, *Im Auto*, pp. 166 – 9.

[56] Geoffrey Hodges, *The Carrier Corps: Military Labor in the East African Campaign, 1914 – 1918*, Westport Connecticat: Greenwood press 1986.

[57] Ann Beck, *Medicine and Society in Tanganyika 1890 – 1930: A Historical Inquiry*, Philadelphia: American Philosophical Society, 1977, p. 40.

[58] There is a vast literature, much of it of a popular nature, dealing with the war in East Africa, Edwin P. Hoyt, *Guerilla, Colonel von Lettow-Vorbeck and Germany's East African Empire*, London: Collier Macmillan, 1981. General von Lettow-Vorbeck, *Meine Erinnerungen aus Ostafrika*, Leipzig: Verlag von K.F. Koehler 1921. The most detailed archival sources for this war are to be found in the National Archives, formerly Public Records Office, in Kew, England. The War Office 158 Africa series, subseries General Headquarters, WO 158/459 – 467 deal with NORFORCE, the British forces commanded by General Northey. In addition WO 95/5329 – 5331 contain the war diaries of General Northey and provide a day by day account of developments in north-eastern Zambia and south-western Tanzania during the war.

[59] The same held true for the areas in the immediate vicinity of the railhead at Broken Hill. NAZ, KDA2/1 volume 1, notes of 3rd Indaba held April 1916 "Famine in parts of district,…".

[60] Page, "Introduction: Black Men in a White Men's War", p. 7.

[61] Melvin E. Page (editor), *Africa and the First World War*, London: Macmillan, 1987. Melvin E. Page, *The Whiwaya War: Malawians and the First World War*, Boulder Colorado: Westview, 2000.

[62] Geoffrey Hodges, "Military Labour in East Africa and its Impact on Kenya", pp. 137 – 151, in, Page (ed.), *Africa World War*; Geoffrey Hodges, *The Carrier Corps: Military Labor in the East African Campaign, 1914 – 1918*, Westport Connecticat: Greenwood press 1986; Geoffrey Hodges, *Kariakor: The Carrier Corps: The Story of the Military Labour Forces in the Conquest of German East Africa, 1914 to 1918*, Nairobi: Nariobi University Press, 1999.

[63] Geoffrey Hodges, *Kariakor: The Carrier Corps: The Story of the Military Labour Forces in the Conquest of German East Africa, 1914 to 1918*, Nairobi: Nariobi University Press, 1999.

[64] Ann Beck, *Medicine and Society in Tanganyika 1890 – 1930: A Historical Inquiry*, Philadelphia: American

Philosophical Society, 1977, p. 40.

[65] RH, MSS. Afr. S. 776 – 781, March 31 1919, NC office Solwezi, My dear mother.

[66] PRO, CAB 45/14, East Africa Campaign Great War: Accounts of activities on and around the Northern Rhodesia Border.

[67] For further information on Northey see, G.W. Hatchell, O.B.E., "The British Occupation of the South-Western Area of Tanganyika Territory, 1914 – 1918", in *Tanganyika Notes and Records*, 1958, Number 51, pp. 131 – 155.

[68] PRO, WO 95/5329,East Africa Brig Gen E. Northey's War Diary 4 Dec 1915 – 8 Apr 1916, 7 January 1916.

[69] PRO, CAB 45/14, East Africa Campaign Great War: Accounts of activities on and around the Northern Rhodesia Border. Folio 2.

[70] PRO, CAB 45/14, East Africa Campaign Great War: Accounts of activities on and around the Northern Rhodesia Border. Folio 3.

[71] PRO, CAB 45/14, East Africa Campaign Great War: Accounts of activities on and around the Northern Rhodesia Border. Folio 4.

[72] PRO, WO 95/5329, East Africa Brig Gen E. Northey's War Diary 4 Dec 1915 – 8 Apr 1916

[73] PRO, CAB 45/14, East Africa Campaign Great War: Accounts of activities on and around the Northern Rhodesia Border. Folio 1.

[74] Stephen Rockel wrote to me in 1988 with the following: "I like the story told with astonishment by a colonial official in Tanganyika about porters and a lorry in the Kilimanjaro region. Some time in the late 1920s he recruited unwilling Chagga porters to go on tour with him, only to find that they all chipped in to hire a lorry to transport his loads. This made more economic sense to them – they could make more money if they stayed behind rather than wandering around the countryside for a pittance".

[75] The district notebooks stored in the National Archives of Zambia contain a wealth of information on the various travel routes in existence in Zambia prior to the introduction of the motor-car. See in particular NAZ, KDF 3/1 Vol. 1., District Commissioner and Magistrate, Mweru – Luapula District at Fort Rosebery, Folio 106.

[76] Alberto Minetti, "Efficiency of equine express postal systems", in *Nature*, Vol. 426, (18/25 December 2003) pp. 785 - 6.

[77] Joseph A. Amato, *On Foot: A history of walking*, New York: New York University Press 2004.

[78] http://www.snp.nl/ProductGroups/invariant/products/Category.aspx?CategoryCode=WALK&WorldPartId=15&countryId=126.

[79] NAZ, KDA2/1 Volume 1, District Notebook Broken Hill, Folio 160 ff. "District Travelling". The 27 tours dealt with spent 501 days on tour and covered 5242 miles.

[80] In this developments in colonial Zambia mirror those in colonial Namibia where, from about 1925 onwards the motor car, and with it the truck and bus, came to play an evermore important role in everyday life. Within the Namibian context, trips to outlying areas had taken the form of ox-wagon and walking expeditions, sometimes taking up to three months or more. With the introduction of the car, a trip from Windhoek to the Waterberg, which would normally be done in four days, could now be done in a day.

[81] NAZ, KDG 5/1 Volume 1 Chipata District Notebook, 10 – 19 June 1919, lists a ten day tour in which 196 miles were covered by motor and 50 by walking.

[82] NAZ, KDA 2/1, Vol. 1, Broken Hill, 12 – 17 Sept. 1925.

[83] Audrey 1. Richards, *Land, Labour and Diet in Northern Rhodesia: An economic study of the Bemba tribe*, London: Oxford University Press, 1939.

[84] Rhodes House, Oxford, Mss.afr.s.79, Denny (Spencer Reeve). Typed extracts from letters home, Northern Rhodesia, 1929 – 31, 17th February 1930.

[85] Rhodes House, Oxford, Mss.afr.s.79, Denny (Spencer Reeve). Typed extracts from letters home, Northern Rhodesia, 1929 – 31, 17th February 1930.

[86] Megan Vaughan and Henrietta L. Moore, *Cutting down trees: Gender, Nutrition, and Agricultural Change in the Northern Province of Zambia, 1890 – 1990*, London: James Currey, 1993.