

no purchases.

Elizabethville to Bukama, January 6, 1920. Left Elizabeth at 9:30 p.m. on a goods train loaded with soldiers and their wives,--one or more for each soldier. The government allows one wife to travel with each soldier. At first the vegetation along the line is exactly similar to that at Elizabethville.

A -4. As seen at the depot as our train pulled out. Shows a lot of Negro women down to the train to see their husbands off.

Luiswiski. Here we were passing along the watershed with no change of vegetation. Trees were a little shorter. These were cut down for some distance back from the right-of-way.

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A -5. Shows grass and bush in the foreground and large, fine trees in background, also a few native huts. Track and bare ground with a ditch further back.

We are passing the great watershed which divides the Congo from the Zambesi with a great forest extending off in all directions. Trees are rather tall with good growth. Hills can occasionally be seen and at one place a grass-covered hill just beyond Luiswiski. There is no change in soil. Protea occurs quite generally along the bank and a broadleaved tree like Mohobohobo is also abundant. Grass in large bunches and forms an open sod. They are not as tall and rank as acacia-tall grass areas. In fact, the difference between this place and Pretoria consists more in the grasses than the general arrangement of trees. Grass^{es} in the South and low veld are coarse "sour" grasses, while here they seem to be small and sweet for the most part. The word "sour" is synonymous with unedible, and "sweet" with edible. Hills are covered with open forest and the trees never produce a light-proof canopy.



A -6. Tumbwe. A general view of the depot. Trees and natives. A typical railway station. Apparently there is copper mined here.

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A -7. Looking over the grassland and trees with a lot of shrubs and bamboo along the edge just before reaching Sofumwango. Here the trees seem to be a little larger but are also a little further apart. The anthills are larger.



A -8. A double-exposure, but shows wood pile with natives loading wood, and also fairly typical view of the native vegetation.



A -9. Trees and grass typical forest, cleared in foreground.



A -10. A wood pile. Loading wood onto our engine. All of the engines here are wood burners. There are here both the round-leaved and the flat-leaved *Sansevieria*. Here we passed a station, either Mekse or Lukwe. Could not be distinctly read. Beyond this are a few tall bulged stems of the *Borassus* palm. There are a great many natives here.

Kapolowe.

A -11. Shows native corn field in the foreground. The principal native crops here are corn and sweet potatoes. No change in natural vegetation.

Kambove to Bukama, January 7, 1920. We reached Kambove sometime during the night. We have no dining car on this train and are carrying our own beds.

At this place the soil is often solid rock to the very surface, and it seems to have very little effect on the vegetation. Trees are good and tall and few of the fine-leaved or folding leaf type of *Brachystegia*. The very long-podded legume is here, where it forms a fair sized tree and is limited largely to the anthills.

Much of the time we seemed to be on the watershed with low mountains on either side. At Kambove the natives were selling sugarcane.



A -12. A view out over the tall grass with acacias in the background. This is typical of the low country, where *Brachystegia* and *Combretum* give way to acacia.

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B -1. Similar to A -12. Here there are a few mines, and there is also some native agriculture. Tall coarse grasses are becoming noticeable, one which stands up like sugar cane. We are now passing to lower country, almost swampy in places. The trees are shorter/ on the heavy soil than on the more rocky and well-drained soil, while the anthills are marked by the most luxuriant vegetation of all, although they do not produce trees which stand out over the surrounding country. As rule there are many shorter trees and vines and shrubs on the termite hills. The swamp acacia which seems smaller to that photographed at Kafue, is a very beautiful tree. The loose-panicled grass is decidedly an anthill grass, while the tall Cymbopogon-like grass is very abundant on the rich soil and also grows on the flats. In the native plantations of corn and beans it looks almost as if the beans had been used to choke out the weeds. Occasionally pumpkins have been planted. The bracken is occasionally very dense. Here we crossed a bridge, a very dangerous one but with rank vegetation along the river sides, and here for the first time I have noted the tall sorghum-like grasses. Here are also tall bananas.

no neg

B -2. Shows Negroes on anthill at side of the track.



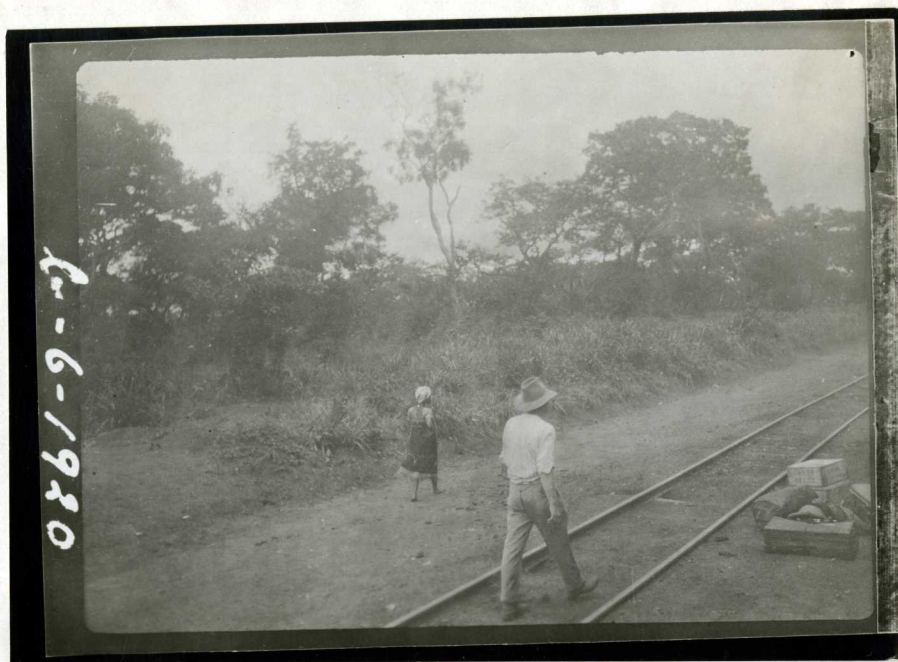
B -3. Shows a group of Negroes at side of track, with bananas, tobacco plants in foreground and hill in the back. This is one of the copper hills where trees do not grow especially well.

Fungurume. Here is quite a village of native huts and also a number of houses.

B -4. Blank.



B -5. Shows garden with bananas in the background, also native hut in background.



B -6. A Belgian purchases a new wife. Saw him pick her out. We have spent hours at this place while the officials have been debating the question as to where to unload goods from one of the goods cars. Later they decided and unloaded the lot. The whole affair can be summed up as tons of French and ounces of action, and the latter limited largely to hand-swinging and shoulder-shrugging. This could be more patiently endured if we had had anything to eat.

Here there are great hills with the slopes entirely free of timber. The rock comes to near the surface and the vegetation is sparse, consisting of grass or grass and a few ferns. This rock is high in copper, and is mined off from the surface. Pterocarpus and the broad-podded Brachystegia and Burkea-like tree are abundant here. There are many large monument type of termite hills. Soil is all red.



B -8. Shows tall grass in foreground and fine tall trees in the background. Soil here about 5 feet is red and changes to lighter color below this depth. The tree roots pass through this soil but also have well developed surface system. Proteas occur here.

Note. At Elizabethville we slept without mosquito nets, but here on the train we are greatly annoyed by a small grey fly which is perfectly noiseless and which bites as hard as any fly I have ever seen.

Candelabra euphorbia occurs here most commonly on the anthills.

Tshilongo.

B -9. A general view of a garden. Shows bananas, beans and an excellent growth of garden peas. The presence of perfectly healthy garden peas speaks eloquently for the climate of this section.





B -10. Shows canna, zinnia, yellow dahlias, dasheen, banana, Cape gooseberry, all doing excellent here in this garden. Just beyond this point soil is a little thinner and trees shorter. These patches are generally marked by the appearance of Proteas. One can often see for miles at the side of the track.

This is in places a poor short-grass land, with dark sandy soil.

Proteas occur about the edges of these areas.

B -11. M'Gule.
Here the natives were clearing off a relatively large patch of land near the side of the track and came running across at the approach of the train. Just beyond a small herd of cattle are noted. They are relatively rare in this part of the Congo.



There is quite a large native village here and a considerable amount of agriculture. Also a few horses and cattle. Here I noticed a new Protea, very short stem, 1-2 feet, with large white flower at end of branches. There are here fewer of the tall grasses and more of the shorter ones. Strychnos is quite abundant here and is bearing heavy crop of fruit. Green at this time and almost full grown. Pteridium is very abundant, forming dense growth. The leaflets are distributed almost equally around the central axis and many of the plants seem to be diseased,--leaf roll. The trees are shorter and shorter and more of the Mohobohobo type.

We then passed out into pure grassland. Here fine deep soil with no profile evident. It looks just like our prairie. Small composite similar to Eriogonum canadense, and occasionally taller grasses and occasionally taller grasses and a protea bush here and there. There are here great stretches of grassland with a fringe of low trees marking the edges of this grassland.

The temperature at 5 p.m. was 70° F.

We then passed into a low growth of Pteridium 10-15 feet high, then more grassland areas, along the edge of which many trees were reduced to mere bushes. Fire apparently passes over these grasslands and through the adjacent forest, holding back many species and favoring others. Protea, Pteridium and Mohobohobo seem to withstand fire. See no anthills on the grassland, which is pure bit of open prairie. At one place a very dense forest pushes into the grassland, the only bit of real tropical forest seen up to this time. One of the grasses is very tall and forms an open-branched head.

Smith's Camp. Here we made a short stop in this great high grass-

land, and here there are many herds of longhorn cattle.

Although it was unusually dark several attempts were made to secure photographs C -2, C -3, C -4 and C -5. These give a fairly good idea of what this wonderful country looks like. In appearance it is exactly similar to our prairie, but in the lower, damper places resembles somewhat wet prairie. Soil is dark and grass for the most part not of the *Andropogon* type. Some very handsome plants of *Bulbostylis* here. One of the larger *Andropogon* grasses looks like *Andropogon furcatus*, but has much larger awns.

We then dropped down into forest again and passed over small stream flowing to the westward



C -2.





C -3.



C -4.



C -5.

We skirt a broad valley and pass down to near the eastern watershed. Here again anthills are large and red. Trees for the most part 15-20 feet high and there is more grass than usual.

C -6. Shows soil cut down to the rock base. Only occasionally mass of soil left standing. This photograph was taken considerable time after dark and given very long exposure.



January 8, 1920. Kalule Sud. 7 o'clock the night before we stopped on the main line and here we have stood ever since. Engine is now entirely cold. There is nobody about and nobody knows when we will move again.