



X<sup>1</sup>-6. The Borassus palm, which shows a swelling high in the stem. Produces a fruit which is prized as food by the natives. One of the native boys eating one of these fruits.

Kafue, November 22, 1919.

Out early. Almost all of country dry veld in which Combretum and many other trees play a prominent part. The hills are also grassy. Many of the trees are used by the natives for some purpose. The following determinations were made here:

1:30 p.m., dry bulb 84° F., wet bulb 68° F.  
4:00 p.m., " " 85 " " 68

We were joined about noon by Mr. H. M. Vale of Kafue, who had been through the war with the British army and was here recuperating.

Mr. William Fell, a missionary who lives not far beyond the camp, dug a well to 50 feet. The top soil was from 10-12 feet deep, below this a ~~layer~~ yellow clay for 20 feet, then 2 feet of coarse, sharp gravel, then a ~~layer~~ of yellow clay, then white clay 30-35 feet, and there on to 50 was ? clayish. The soil was moist all the way down.





X<sup>1</sup>-7. Shows 2 trees of *Diospyrus senegalensis*, S.P.I. 49586, and a typical open portion of the acacia tall-grass country.



X<sup>1</sup>-8. As X<sup>1</sup>-7, but shows more grass land, typical of the more open portions of the upland.



November 23, 1919.



X<sup>1</sup>-9. Kafue. At breakfast. H. C. Raven at the right, H. D. Shantz and Vale. Since our supplies had been lost and not recovered for two weeks, spent practically the whole day preparing seeds to be mailed back to the States.

November 25, Kafue, at 10:10 a.m. the reading was 74°-69° F.

November 26, at 1 p.m., 85°-73° F. It is cloudy part of the time and we are in the midst of the rainy season, but so far only about 3 inches of the 30 which are due have yet fallen. The trees, grass, bulbs, and roots are suffering terribly and the whole country is in a drought condition. For some reason rather difficult to explain the trees, bulbs, etc., started to grow in anticipation of the rains, and when the latter is delayed, as happened in this case, these plants suffer from drought. Have found many trees of impinji, but though they are red and tempting they are seldom ripe enough to eat. Sometimes called wild damson plums, but more nearly in size and shape to our *Prunus americana*. In addition to the sour and unpleasant skin, it has a large seed and a much tougher pulp which adheres to the seed and is difficult to remove. This pulp soon loses its color when it is sucked in the



mouth and also has a strong odor of wild cherry and tastes much like it. This taste is very pleasant, at least to an American.

I am impressed with the use of grass by the natives,-- a few poles cut from any tree, a few palm leaves or the bark of *Brachystegia*, a little attention to rough detail and the addition of a few bunches of dry grass lashed down again by palm leaves or *Brachystegia* bark, and you have a wonderfully serviceable shelter at practically no expense. In America galvanized iron and boards make stock shelters more expensive and less sightly and less comfortable, for these shelters not only protect from inclement weather, but heat or sun also, and while not entirely proof against heavy rain, when well made they seldom leak in more than one or two places.

X<sup>1</sup>-10. General view in camp, showing the construction of a hut, also  
H. L. Shantz.





X<sup>1</sup>-11. Detail of the construction of a hut. Shows poles lashed into place with palm fiber.



X<sup>1</sup>-12. A general view of the camp, showing 3 temporary huts and the tent.





Y<sup>1</sup>-1. Photograph of the finished hut taken a few minutes later. Shantz working at the protected field table.

November 27, 1919. The following plants collected at Kafue on this date and sent in. The names are mostly chinyanja:

- S.P.I. 49470, mfwefee, a small tree with edible fruit, said to be a small oval green fruit with white spots, and very good. Fruit unusually sweet. See Herb. No. 437. I have seen the ground in many places covered with old fruits, but have been unable to secure any fresh fruit, since almost all the trees are now past the fruiting stage. We find, however, that all of the trees are not in phase, and that there is a great variation in their time of fruiting.
- S.P.I. 49606, Vitex. A small tree with very rough thick twigs. The fruit has three carpels, often with three seeds. See Herb. 438.
- S.P.I. 49466. Uapaca sansibarica. Seed of the mahobohobo, a popular wild fruit. When very ripe has the flavor of bumblebee honey. Also called massigo. The leaves are large and similar to Magnolia grandiflora, but not as leathery. Fruit in clusters, produced mostly on the old wood. This fruit was sold by natives at the train.



- S.P.I. 49586, *Diospyrus senegalensis*, Herb. 435, known as inkulu, chanje or chanja, somewhat smaller than mahobohobo, but has equally as good a flavor. It is a little lighter, more yellowish in color. Yellow slightly tan. Tree 10-15 feet high. Has from 1-5 seeds in each fruit. When not ripe it is as astringent as a persimmon.
- S.P.I. 49587, A superior tree of S.P.I. 49586, its fruits are longer and have a better flavor. The natives usually pick the fruit by felling all or part of the tree with an axe.
- S.P.I. 49607, A very small tree with a fruit that has the appearance of a small quamquat, but real fleshy outside. They are eaten by the natives. The flesh is quite good but very thin. Some natives avoid this fruit. It is called mtingele. See Herb. 433.
- S.P.I. 49460, *Caesalpinia* sp. See Herb. 432, known as uteta, a large bean, grows on small tree 5-10 feet high. Beans are useful as food, but must be boiled in four changes of water. Each time the water is thrown off. Beans are said to be very poisonous if eaten at first boiling.
- S.P.I. 49459, *Brachystegia* sp., known locally as mombo, a large spreading acacia-like tree. Somewhat similar to *Brachystegia randii*. The seeds are large and are eaten by both natives and baboons. The bark of this tree is used for every purpose where rope is needed. Formerly was beaten and produced a bark cloth used by the natives for clothing. Herb. 436.
- S.P.I. 49602, *Ximenia americana*. Seeds similar to those sent in as S.P.I. 49250, similar in shape and color to *Prunus americana*. Has very attractive wild cherry flavor, but difficult to eat since the skin is very unpleasant and the pulp adheres to the <sup>large</sup> stone. The seed is very good to eat and produces one of the best table oils of any plant in this section. Used extensively by the natives in Nyassaland for table oil, according to Dick, one of our native Nyassaland boys.
- S.P.I. 49589, *Garcinia*, known as munkonga, same as S.P.I. 49169, one of the best fruits. Seeds are soft and full of orange-colored sap which dries rapidly and is very sticky.



S.P.I. 49593, *Luffa cylindrica*, a relatively abundant plant here.

The common palm here is the *Borassus* palm with large one-seeded fruit 3-4 inches long. Bright orange reddish-yellow flesh, highly esteemed by the natives. Shown in photographs X<sup>1</sup>-6, W<sup>1</sup>-6, 1919. This tree forms a large bulge about one-half its height from the ground. This seems characteristic of the species and it shows on all trees at Kafue. The fiber and leaves are used in many different ways, especially for making mats, for making huts, for use as rope and also as baskets. I have eaten the young leaves both fresh and boiled and found them excellent. The lower stem is quite bitter. It grows rapidly from seed and the fruits are used as vegetable ivory.

This is a marvelous place for wild fruits. Although this is the off season, there are still many kinds here. An effort will be made to secure everything before we leave. The majority of the fruits grow on small orchard-steppe trees. Each year the grass is burned and although the trees are thrown back and kept from flowering, they ultimately come on out of season.

There are a few old fields here, abandoned about three years before. They were corn fields and abandoned because of the ravages of the baboons, troops of which utterly destroyed the crop. Trees have already become rather prominent on these fields. The weeds, of course, predominate at the start, and the grasses follow rapidly. On the hills the grasses seem much sweeter. They are not much grazed off at this time to any extent, due probably to the absence of game and cattle. Of the wild animals the hippos are the most abundant at this time. The hippo feeds mostly on low, hairy grasses, and also to some extent on the river grass, and sugar grass which has a relatively sweet stem, and fills the river at the edge of the deep water. Bamboo occurs further in.

The natives here are clothed mostly in cloth,--a cloth around their hips, often wear a shirt as well, and live almost entirely on mealie meal (cornmeal).