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XXIV. *Notes on the Flora of the Neighbourhood of Blantyre, Shire Highlands, Central Africa.* By Mr JOHN BUCHANAN, in a Letter to Professor BALFOUR, dated August 6, 1877.

(Read 13th December 1877.)

The timber here, as in many places among the Shire Hills, is, as a rule, inferior. Beside streams and in damp places some good trees are seen. Except in such places it is rare to meet a tree of more than a foot in diameter. In appearance the trunks resemble much the Plane tree at home. The Lisuka tree is the most useful for house-building and other purposes. The wood is red and hard, and has the advantage of not being soon attacked by insects; the fruit is of a brown colour, about the size of a plum, and much eaten by the natives. It agrees well with the order Santalaceæ, and is plentiful. A wood with a dark, hard centre and yellow alburnum is also plentiful. I have not seen the flower; the leaves are pinnate. A species with white, soft wood and tripinnate leaves is abundant; it is called "Jumbo" by the natives, and from the liber of its bark they make cloth. Acacias abound in both marshy and dry places. There are several species, one has the peculiarity of being flat on the top. A shrubby species is when in flower a complete mass of yellow bloom, giving out a delightful odour. Gum exudes spontaneously from all the species; one kind is very pure and clear, another brown. There are no Tamarind or Baobab trees in the neighbourhood, but thirty miles north they are plentiful. Here and there is a species of Fig tree. Lime trees[?] at one station have cast their foliage twice since November, and are in full foliage now. They are plentiful, but the fruit has never come to maturity. The order Proteaceæ is well represented. There are many Salicaceous shrubs. The orders Leguminosæ and Compositæ are most numerous in species. There is a vast number of twining Papilionaceæ; some are so strong and tough that I use them as garden-lines. Next to these orders come Orchidaceæ, Labiatæ, Liliaceæ, and Amaryllidaceæ. There are many species of Orchids, both epiphytal and terrestrial. Five of the latter are particularly good—a yellow, a purple, a red,

and two white species. Labiatae contain many showy plants, chiefly about waste places. I have seen some lovely specimens of Liliaceae. Several species of Aloe are found on the hills. We have about 400 plants beautifying our station. The natives brought them for sale; the price was an inch of calico per plant. Some of the Amaryllidaceae have very large bulbs; they average 6 inches in diameter. A variety of Castor-oil plant grows profusely about old gardens. The natives extract the oil by boiling the seed, which they use chiefly for lubricating their persons. The orders I have mentioned are the most conspicuous, but many more are represented. I feel confident that there are here many flowering plants which, if brought home and cultivated, would compare favourably with any yet introduced. Ferns as well as flowers are in abundance. At a stream above the station I observed about twelve different species. There are species of *Adiantum*, *Lastrea*, *Athyrium*, *Polystichum*, *Polypodium*, and *Osmunda*. A noble-looking *Osmunda*, scarcely distinguishable from *Osmunda regalis*, is in endless quantity. Thrice I have gone Fern-hunting to the mountains, and found quite different forms from those in the streams. A species, apparently *Lastrea montana*, is everywhere present. Where two or three stones are heaped together, there it appears. I found a remarkable fern; it is about 4 inches high—frond almost a circle; in many parts about one-eighth of an inch broad. These parts fold slightly in the back, and inclose the spores. I have seen species of *Lindsaea*, *Lomaria*, and *Pteris*. I gathered one species of Moss; there are a few Lichens and Fungi; one edible species of Mushroom is very large. Whilst an out-house was being levelled I discovered what I presume to be a species of Truffle, of a small size, oval-shaped, skin hard and black. I have seen several fine grasses which, if grown at home, would prove ornamental. The chief crops cultivated by the natives are Indian Corn, Ground Nuts, Beans, Sweet Potatoes, and Pumpkins. There are no Water-Melons in the neighbourhood. Indian Corn is the staple food of the country; from it they make a flour which they call Uffa. The corn being taken off the cobs, is stamped in a stamper with a little water. This finished it is sifted, not through a sieve, but simply shaken until all the flour is shaken out.

This flour when made into porridge is called Usima. Englishmen use a large quantity of this flour in porridge and bake it into bread. Ground Nuts grow well, and when roasted are very good. Different kinds of beans are cultivated. One is the French Bean, probably introduced by the Portuguese. Two varieties are white, one black, and one, a round bean contained in a thin pericarp, has the peculiarity of growing attached to the root fibres underground. The Sweet Potatoes which they cultivate are rather small; it is the opposite in our garden, but new ground may have something to do with it. Here and there an occasional patch of Sugar-cane may be seen grown for eating in the raw state. Sugar-cane is extensively grown on the banks of the Shire River. Bananas are the only fruit cultivated.

We arrived here on October 24, in time to get our seeds sown before the rains. The first thing to be done was to prepare ground for Rice and Sugar-cane, and a number of natives with hoes were at once set to work. On November 10th, 14th, and 15th Rice was planted; it "briered" in eight days, and looked well until the end of January. The soil was peaty. February was very dry, scarcely any rain fell. The growth was severely checked, and though rain was plentiful in March it never recovered, and a poor crop was reaped about the end of May. A small piece of very wet ground, in which the Rice was transplanted, produced a good crop. I don't think Rice can be grown here without irrigation. Indian Corn grew admirably, but the seed from Edinburgh was a complete failure. I found Sweet Potatoes to be a crop easily cultivated and propagated. Some plants from an old garden soon afforded me plenty of cuttings. These I made a foot long, took off the leaves, and planted them 3 feet apart. They quickly rooted and covered the ground. A small plot was sown with the oil seed called Sesame, and yielded a fair crop. This we shall cultivate largely, as it is the chief article of export.

On November 9 I sowed English vegetable seeds—Cabbages, Lettuces, Cauliflowers, Carrots, Onions, Leeks, Beet-root, Peas, Melons, Cucumbers, and Tomatos; most of these proved to be a failure. The Windsor and common field Bean a total failure, as also Mangel Wurzel, Kohl Rabi, and Turnips. At various times I made sowings of English

grains, Wheat, Rye, and Barley. Of these not one grain vegetated. I can in no way account for such failures, as the seeds seemed good and the soil in fine order when the trials were made. A variety of Wheat from the lower Shire has done tolerably well. Sown on April 2, it is being reaped now; it is short in growth, but the ears cannot be complained of. From Mr M'Gibbon, Botanic Gardens, Capetown, we obtained a varied collection of seeds, amongst which were two varieties of Oats; the Cape feeding Oat, and the Queensland Oat. They have grown as well as could be expected. The Cape feeding Oat is grown in the colony for making hay. The Queensland is different; it is much like the Sandy Oat of Scotland. From Mr M'Gibbon we got Tea, Coffee, and Cotton (Sea Island) Seeds. I have made several trials of the Tea, but without any result. The seeds swelled as if to vegetate, but they rotted. I think the Coffee seed must have been too old. The Cotton grew pretty well. The climate is delightful and healthy; the rainy season commences about the middle of November, and continues till the end of April. I have not seen a whole day of rain. In January it rained nearly every day, but generally in showers of short duration. In February there was little rain, in March plenty. The dry season is from May to November. Now it is very dry, and vegetation is at rest. I am keeping a record of temperature. The heat is in no way excessive, the highest temperature since May has been 134°; at mid-day it ranges between 80° and 100°. The ground heat at mid-day averages about 70°; the highest I have seen was 82°. During night the ground temperature falls on an average from 10° to 12°. I shall try this season to record the rainfall. Blantyre is about 3000 feet above the sea-level, on what Livingstone called the third plateau of the Shire Hills.