

there does not appear to be anything in the material itself which is of value in the direction of supplying elements required in animal metabolism; it may be that its function is that of an anti-acid—*i.e.*, that the animals eat to neutralise excessive acidity of the gastric juice.

An experiment was made to ascertain the power of the material to neutralise a solution of hydrochloric acid of a similar strength to that occurring in the stomach of stock.

One hundred grams of finely powdered material (the sample whose full analysis is given above) were digested with a litre of 0·3 per cent. hydrochloric acid for twenty-four hours, and then filtered. The filtered solution contained 0·9 per cent. solid matter, showing that dilute acids have considerable solvent action on the material. Under the conditions of the experiment, the acid was largely neutralised by the mineral—about 90 per cent. disappearing.

A physiological experiment is necessary to ascertain the precise function of this rock. It may be useful, by mechanical irritation of the bowels, in regulating their action or discouraging intestinal parasites.

THE SOUTH-EAST FACE OF MOUNT KENYA

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Such exploration as has already been done upon Mount Kenya appears to have been largely confined to the northern and western aspect of the mountain. Mackinder and Gregory both attacked it from those sides, while the more recent Roosevelt Expedition also largely neglected the south-east slope. The following notes are made without claim to scientific value, but in hope that they may be of use to subsequent explorers wishing to investigate the least-known side of this very interesting mountain.

The characteristics of the south-east aspect may be summed

up as follows : A network of rivers spreads from the mountain like the sticks of a fan, all eventually finding their way into the Tana River. The gorges in which these rivers run are all far deeper and much rockier than those of the rivers on the other sides of the mountain ; the country is decidedly more wooded, and numerous signs exist of an age recently passed when the forest was of a much greater extent. This very broken nature of the country naturally tends to perpetuate and accentuate peculiarities of all sorts, both of the inhabitants and of the flora and fauna. It may therefore fairly be claimed that the south-east side of the mountain is really the most interesting.

The expedition upon which I made the following notes was conducted from the eastern side of the mountain, while my general course was towards the peak, but with a trend which brought me eventually almost due south of the peak at the highest point which I reached. It must be explained that the local natives, although they do not live at a greater height than 6000 feet, frequent the forest up to 10,000 feet, or even more ; native tracks being found fairly well kept at an even greater height. These are used occasionally as short cuts by men wishing to cross spurs of the mountain, but chiefly by wandering bee-keepers—honey-boxes being found occasionally as high as 11,000 feet. In the course of my official duties, it became necessary for me to investigate the alleged existence of raiding parties on the higher slopes of the mountain, and I therefore formed a camp a little above 10,000 feet. The unaccustomed altitude and cold of this camp, however, produced some little sickness in my caravan, and I was forced to wait there for four or five days for the recovery of the invalids. I therefore took advantage of this short time to make a rapid trip towards the peak. Treating this camp as a base, I left the greater part of my baggage there, taking with me a small light tent for myself, and another for the two policemen who accompanied me. I started at daybreak, and made a camp at about 12,500 feet, sending the porters back again the same afternoon. We spent the night under very miserable conditions, as I had made little preparation for such an expedition, and we suffered consider-

ably from the extreme cold. By nine o'clock at night, the water standing in the bucket in our little camp was frozen solid, and it was almost impossible to sleep, owing to the fact that we had to replenish the fire continually, since the only fuel available was from the roots of the giant heather, which burn up very quickly, though they produce a good fire while they last. Large quantities of hot cocoa served to warm us during the night, and, with sunrise, the temperature grew very much more pleasant. I set out soon after daybreak, and continued the ascent towards the peak. I found movement very exhausting, since the change from the height of 4000 to 5000 feet, at which I had been living for two years, was decidedly trying; while the unaccustomed cold also seemed to put a strain on one's lungs. In consequence, I found it necessary to rest fairly often, and suffered to some extent from headache and nausea as I reached the higher points; the policemen who accompanied me also found the same difficulty. Travelling in this way, I reached a point about 14,500 feet, and was at that time just approaching the snow limit: small quantities lay in crevices in the shadow, though they disappeared during the heat of the day. The ascent was quite gradual, and walking was by no means difficult. Up to about 12,000 feet one was travelling on coarse grass, growing in tufts about twelve to fifteen inches high, interspersed with clumps of giant heather, and in the damper spots with various reedy plants; a flame-red gladiolus-like flower was also conspicuous, while a small blue gentian grew freely in moist spots—these being the only two flowers which were noticeable. At about 11,000 feet the heather and grass grew scantier and more stunted, until at 13,000 feet there was very little vegetation except in the more sheltered corners. A kind of aloe was to be found growing in clumps up to about 12,000 feet, and a few of the plants characteristic of the lower slopes were to be seen in the sheltered nooks. The vegetation belts on the mountain are clearly defined. The forest proper may be said to begin at about 6000 feet, and continues to about 8000 feet, at which altitude clumps of bamboo begin. This mixture of bamboo and forest continues to about 9000 feet, after which the bamboos alone remain and grow fairly thickly up to

10,000 feet. Above this there is a range of beautiful park-like country of coarse grass and heather, with occasional clumps of fine, wide-spreading trees: above 10,000 feet they become rare, and they almost disappear before 11,000 feet have been reached. This part of the mountain is at most times of the year more or less of a swamp; for at least nine months out of the twelve, it is covered with mist varied by heavy rain. The only seasons when finer weather can be reckoned on with any certainty are February and early March, while September is also usually fairly fine. The ascent at any other time of year would be accompanied by extreme discomfort; while any useful observations would be almost impossible, owing to the mist and rain.

The animals found on the lower slopes are those common to the whole of the province of Kenya. In the forest the usual animals are found, the most notable being the elephant and the buffalo; traces of these exist up to 10,000 feet; and at 9000 feet my expedition was somewhat disturbed by the sound of herds of buffalo among the bamboos, though, since these herds have hardly been molested, they are not naturally savage. Traces of animal life mostly disappear before 11,000 feet are reached; above that point, I could find indications of nothing except a small rat-like creature, living apparently in a deep burrow, and one or two birds of the hawk type. I also noticed a small, shy bird somewhat resembling a canary, but with black patches, which was to be seen as high as 12,000 feet. Insects were numerous and varied up to 10,000 feet, and above this point beetles of all kinds were common, but the flying-insects began to disappear.

While travelling through the forest, we were greatly troubled by dense swarms of *Hæmatopoda Alluaudi*; these, however, disappear at about 9000 feet. At 11,000 feet the small variety, *distincta*, made its appearance, and was to be found occasionally even as high as 13,000 feet; this was curious, since there could be practically no food for the insect at such a height, while the temperature varies between heavy frosts at night and tropical sun at midday. I found no traces of mosquitoes above 10,000 feet. My collections of insects and plants are now in the Natural History Museum.

Anyone proposing to make a serious expedition in this country should first choose the right time of year, for the reasons that I have already mentioned ; this is most important. Some form of spirit or oil stove is required, since fuel is almost unobtainable above 12,000 feet. The usual food taken on alpine expeditions is very suitable ; but it is hardly necessary to take great precautions for ice and snow work, since the glaciers appear to be limited in extent, most of the prominent peaks being almost bare rock. As far as I was able to judge, from the point that I reached, the actual climbing would present little difficulty to any experienced mountaineer, unless in an attempt to survey the ice-field. The great variations of temperature, with the very hot sun at midday, make travelling unduly trying, and a rapid ascent should not be attempted. A base camp can be conveniently made at about 10,000 feet. Starting from Chief Mbogole's location, in Mwimbe, an intermediate camp for one night in the forest at about 8000 feet will enable the base camp to be reached with comfort on the following day. It would be almost impossible to make a higher base than this, since it is the last point where any considerable quantity of firewood can be found. A stay of two or three days might with advantage be made at this point, to acclimatise the members of the expedition and for scientific work. Another 3000 feet could then be managed with light tents and the most necessary supplies, which could be carried by native porters up to the next camp—say, 13,000 feet or a little less. From this point they could return to the base camp the same day, which would enable them to spend the night in a camp where firewood was plentiful. From this point at 13,000 feet, the advance would have to be made only by carefully chosen men, with some little experience of mountaineering. Should a native be taken, very warm clothing would have to be provided for him.

At about 12,500 feet there is a gully at least 200 feet deep, which divides the eastern portion of the mountain from the final peak. This gully should well repay exploration, as it appears to run right into the mountain, the sides growing more precipitous and higher, until a curve hides the end from sight. Between these two walls is a stretch of ground covered

with coarse grass, through which runs the little stream that is the source of the Nithi River. This pretty, sheltered valley might well provide very interesting entomological and botanical specimens. From this point to the edge of the glaciers little difficulty should be experienced.

The summit of the mountain presents from the south side the appearance of a broken-down crater-lip, with certain peaks projecting from it, the highest point being a rocky tooth on the western side. To reach this, it would be necessary to travel along the western slope below the edge of the snow-field, until the western edge is reached ; if the direct line of approach should be followed, it would probably entail a considerable amount of snow work, though the resultant observations might make this worth while. I am, of course, unable to give any account of the nature of the snow-field, as I never reached the apparent edge of the crater, and I am aware that Mackinder makes no mention of the existence of a crater ; but this may perhaps be the result of the great difference undoubtedly existing between the southern and northern or western aspects. A similar explanation may apply to the discrepancies between Mackinder's account of the vegetation and my own observations. I understand from Dr. Wollaston that he has noticed considerable varieties in the characteristics of other African peaks, so in this matter Kenya would appear merely to conform to rule.

Should anyone be contemplating an expedition to Mount Kenya, I should, of course, be very glad to furnish any further information in my power.

LAMU CHINA AND POTTERY

BY CAPTAIN CARY

I think it is beyond doubt that Lamu or its neighbourhood never produced the articles of porcelain which commonly bear its name. The so-called Lamu china comes from China, India, and Persia, and none of the articles that I have seen appear to be of a very high class. Some of this china may