

interested in those details to consider the article when it is published. I would just point out that it cannot always be a high land, very high continuous land, because at Wild's base, where the land was not high, the blizzards were intensely strong, and no less strong were the blizzards at Mawson's base, where the land in the immediate vicinity is not mountainous at all. With regard to the question whether the sea-ice could form a barrier, I would point out that just like this small remnant of this barrier, the great barrier varies very much in thickness; it is only about 20 feet above sea-level in some places, and at other places it is 150 feet. If the structure were formed by the very steady freezing of sea-water, would you expect to find these variations in thickness? I have tried to touch on the question of taking temperatures. May I remind you that if any of you wish to continue this discussion, and make it as detailed and as scientific as you will, there will be an excellent opportunity for you to do so this year in Australia at the meeting there of the British Association for the Advancement of Science, when Mawson is going to open a special discussion on Antarctic exploration. I cannot close this acknowledgment of the vote of thanks without taking the opportunity of publicly wishing Godspeed and a safe return to all those who are going out on these Antarctic expeditions this year, and especially to my old leader and his comrades. I am very grateful to you for the way in which you have listened to this lecture.

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### THE GEOGRAPHICAL RESULTS OF THE NIGERIA-KAMERUN BOUNDARY DEMARCATION COMMISSION OF 1912-13.\*

By Captain W. V. NUGENT, R.A.

THE section of the boundary between Nigeria and the Kameruns which was demarcated by an Anglo-German Commission during the winter of 1912-1913, is that which lies between the village of Bayare, 30 miles south-west of Yola, and the customs station of Obokum, on the Cross river. The total length of this frontier, measured from post to post, is 360 miles. It is partly natural, partly artificial, and lies for the most part in wild mountainous country, crossing the long spurs which run north and west from the central plateau of the Kameruns, into the fertile plains of Nigeria.

Recent explorations in the Kameruns have determined the configuration of the high plateaux and mountain ranges, which extend south-west in practically unbroken lines, from the Alantika and Shebshi groups, south of Yola, towards the Bight of Biafra, where they culminate in the Great Kamerun peak, the same chain rising again from the sea to form the island of Fernando Po. The frontier between Yola and the Cross river, running also south-west, follows, generally speaking, the western limits of these highlands, dividing, politically, the Kameruns from Nigeria, and geographically, mountains, torrential streams and sparsely inhabited areas from wide fertile plains, great navigable waterways, and densely

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\* Royal Geographical Society, March 9, 1914. Map, p. 730.

populated districts. The principal localities of geographical interest crossed by this boundary are the Shebshi mountains, the valleys of the Teraba, Donga and Katsena rivers, and the high watershed between the Benue river system and that of the Cross river.

It is worthy of note that the Benue itself, as well as its three great southern tributaries, all of which rise on the plateaux of the central Kameruns, only become navigable for canoes near the points at which they cross the boundary into Nigeria. These limits of navigation have naturally had an important effect on the distribution of man over the country—the more civilized peoples inhabiting the plains, where trade routes are numerous and easy; while the savage pagan tribes, who care nothing for trade and only want to be let alone, have withdrawn to the almost inaccessible hilltops. It has yet to be proved, however, that the inhospitable Kamerun mountains do not contain a far greater source of wealth, in the shape of undeveloped minerals, than the wide cultivated plains of Northern Nigeria.

The area through which the boundary-line runs was surveyed by the Commission under Colonel Whitlock, R.E., between 1907 and 1909. Having been a member of that Commission, I was sent out again in August, 1912, to mark the boundary on the ground, the line having been previously settled approximately on the map, at a conference between the British and German Governments. Lieutenant Kyngdon, R.A., was appointed to assist me, and two non-commissioned officers of the Royal Engineers were attached to the Commission; one being a topographer, and the other a stonemason, whose duty it was to make the cement pillars for the iron boundary poles.

Doctor Lobb, of the West African Medical Service, was appointed medical officer, and when we arrived in Nigeria, the party was joined by a political officer and an escort of 30 men of the West African Frontier Force, under Lieutenant Pawle of the Border Regiment. This escort remained with us all the time we were in Northern Nigeria, being afterwards relieved by Southern Nigeria troops when we entered that country.

The main purpose of the expedition was the demarcation of the frontier; but the party made use of this opportunity to carry out a good deal of additional survey work, more especially in the Kameruns, using as a basis the triangulation points previously fixed by the Survey Commission. It was also possible to study more closely the geographical features of the actual boundary zone.

The Commission arrived in the mouth of the Niger on August 31, 1912, and proceeded to Yola by river steamer. The journey of 800 miles up the Niger and Benue occupied three weeks. At Yola 300 carriers were collected, mostly Hausas and Fulanis; also guides, interpreters, and horse boys. Horses were procured from the Emir, and they were most useful during the first part of the work, when the country was more or less open and free from the "tsetse" fly.

The British party left Yola on October 4 for the boundary, a three days' march, and met the German Commission under Oberleutnant Detzner at Bayare, near Boundary Post 17, the last pillar of the Lake Chad-Yola frontier. The work of demarcation commenced on October 8, and continued without interruption for six months, during which time one hundred and sixteen pillars were placed in position.

Bayare is situated in a gently undulating plain, about 1400 feet above sea-level, watered by numerous rivers and streams, which, rising in the Shebshi mountains, flow north and west into the river Benue. The boundary across the plain is marked by a cutting through the bush 25 miles long, with a chain of pillars extending in a straight line from Bayare to a point on the M'Bulo river, where that river issues from the great mountain wall formed by the Shebshi group, the crest-line of which divides the Yola and Muri provinces.

The M'Bulo river itself would have formed the best natural boundary through this plain, but no suitable *quid pro quo* could be found, as an area of about 100 square miles of very fertile country was involved. The plain is covered with thin bush, and dotted with villages, each with its surrounding patches of cultivation. The formation is brown laterite, the rocks containing occasional bands and lumps of ironstone. From the general level rise isolated granite hills, the most prominent of which is a gigantic solitary rock called Lamja, which stands like a sentinel overlooking the boundary, nearly 3000 feet above the plain. This mountain is pear-shaped, the base being solid, but the whole upper part is built up of huge masses of granite, each as large as a good-sized house, piled one on top of the other like a pyramid of gigantic sugar cubes. The topmost rock is shaped like a parrot's beak, the northern face having a sheer drop of about 400 feet. The lower slopes are covered with pagan villages. Across the boundary, in German country, stands another great hill called Mungla, with three sharp-pointed spires. The most noticeable feature of all the mountains in this district is the extreme sharpness of the peaks and the concavity of the slopes. The smaller isolated hills in the plain are rounded lumps, covered with grass and small scraggy trees.

The people inhabiting the plain on both sides of the boundary are Fulanis, subject to the Emirs of Yola and Nassarawa; but the tops of isolated mountains and the narrow valleys between the long spurs jutting out from the Shebshi group, are inhabited by pagans, offshoots of the Chamba and Dakka tribes. The habits and customs of the Fulanis are well known—they are by nature herdsmen, just as the Hausas are born traders and the pagans agriculturists. The country is rich in flocks and herds of cattle, sheep, and goats. A large trade is also done in horses.

The villages consist of round huts, of sunbaked mud, with conical roofs thatched with dry grass. Sometimes, when the village is only intended to be temporary, the walls of the huts are made of zana matting, which is also used to enclose the compounds, or groups of huts inhabited by one

family. Every village has its assembly place, generally under a large shady tree, where the headman and his advisers sit all day and smoke while the slaves work in the fields or drive the cattle to pasture.

Slave-dealing is still carried on in this country, advantage being taken of the proximity of the boundary, which makes it so easy to evade justice.

Many of the carriers with our party were runaway slaves, and soon after leaving Yola we had much trouble with female slaves who had escaped from their masters and joined the headquarters of the expedition, where husbands and food were plentiful. Angry masters, mounted on fiery horses, used to arrive in the camp at all hours of the day and night, demanding their lawful property. The ladies were for the most part unwilling to return to the harem.

The work of marking the boundary was watched with the greatest interest by the Fulani population. The "kings" of all the towns on the English side, and a good many from the German side, came to salute us, generally bringing a present of a fowl or a basket of limes. Each "king" carries a long stick surmounted by a brass crown, the emblem of his office under the Government. There are first, second, and third class kings; the size of the crowns varies accordingly.

The boundary, after crossing the plain, runs along a narrow valley almost shut in by hills, following the upper M'Bulo river to its source in the Shebshi mountains. The line now crosses the so-called basalt plateau from point to point, passing over the summit of Mount Dakka, the highest peak in Northern Nigeria. The boundary pillar on this point is 5338 feet above sea-level. The plateau is really a long unbroken ridge, connecting a series of small undulating plateaux; at intervals along the ridge are high grass-covered cones. These hills are formed of granite and schists covered over with basalt and other volcanic rocks. Many of the peaks are weathered into sharp fantastic forms. The view from Dakka is magnificent. On all sides are tumbled masses of mountain, much cut up by deep ravines and rocky gorges, through which the many headwaters of the M'Bulo and Kam rivers tear headlong to the plains. On the German side, Vogel Spitz rises amid innumerable peaks and valleys to a height of nearly 7000 feet, overlooking some hundred square miles of still unknown country. The northern spurs, projecting into the Kameruns, enclose high tablelands, extraordinarily fertile and highly cultivated. On the British side, the plateau throws out steep, barren spurs to the north, the narrow valleys being inhabited by Chamba and Dakka pagans.

The boundary crosses the plateau near the only practicable pass, the road being entirely on the German side, so that one result of the demarcation is to close the direct trade route between the M'bulo and Kam valleys, until a new pass is discovered. There are plenty of tracks over these mountains, but very few practicable for animals. A bull which costs £1 at Tibak in the M'bulo valley is worth £3 or £4 at Gankita in the Kam

valley, the distance as the crow flies between these two places being no more than 12 miles.

The Shebshi mountains are interesting from the fact that they would form the principal obstacle, a well-nigh insuperable one, to the construction of a direct line of railway from Calabar, or a point on the Cross river, *viâ* Takum and Bakundi, to Yola. Yola is one of the few important points in Nigeria which does not appear likely to be linked up with the coast by a railway for many years to come. The German railway from Duala to the north, if it ever does reach Garua, will pass to the east of the Shebshis, where many obstacles, almost as formidable, will have to be overcome.

This wild mountainous region is still a practically unknown field for mining enterprise, and as part of the configuration of the eastern Shebshis is similar to that of the Bauchi plateau in Northern Nigeria, it seems not improbable that tin may be found there in paying quantities. Gold has already been reported to have been discovered in this district. The people inhabiting the Shebshi mountains and their foothills are principally Chamba and Dakka pagans. They have many points in common with other hill pagans of Northern Nigeria and Adamawa. The effect of Mohammedan inroads upon these tribes is especially evident. They may be divided into two classes, firstly, those who are slaves and mingle freely with the Fulanis, their villages being in the plain; and secondly, those who hold themselves aloof on the hilltops. The former have copied many things from the Fulanis, such as clothing, houses, etc.—almost everything, in fact, except their pastoral proclivities. The pagan will keep goats and fowls, but he will have nothing to do with horses and cattle.

It is with the hill-top pagans, however, that we are principally concerned, as nine-tenths of the whole boundary zone are inhabited by people of this denomination. The first sign of the lower stage of civilization is the absence of clothing. A tuft of grass is the national dress, and even this is often dispensed with.

The villages consist of little beehive-shaped huts of mud or grass, perched on apparently inaccessible heights, or cunningly hidden away in mazes of dense tropical vegetation. The inhabitants bear a great resemblance to monkeys, being small in stature, but extraordinarily active. The steepest and most difficult ascent over rocks and ravines is to them as easy as a straight, broad, level road. In fact, I have often noticed that these pagans, made to carry a load on the level, are utterly at a loss. They only come down from their rocky fastnesses to cultivate their fields, or to make war on their neighbours. They are armed with bows and poisoned arrows, from which it is never safe for them to be parted, even when working in the fields. They are almost invariably at war with a neighbouring village, the probable reason being that some of their women have been carried off. No regular trade is indulged in, but they are very fond of salt, which they obtain from Hausa traders. A bag of salt

which costs half a crown on the coast has a purchasing power of at least ten shillings in this country.

Each village is an independent community under a chief. The inhabitants are entirely ignorant of the world beyond the next village to their own. The nominal chief of the village has not, as a rule, as much influence as the local juju man or witch doctor, whose power over these extremely superstitious people is directly proportionate to his success in imposing upon their credulity. Any calamity, such as an epidemic of sickness or a sudden death, is always attributed to the evil eye, and some member of the community is at once suspected, and either killed or sold to passing Hausa traders. If a chief dies, the village always moves to another site. This partly accounts for the number of deserted villages and ruins found in the Shebshi mountains.

The Chambas are industrious agriculturists, and keep large numbers of goats and fowls in their villages. The farms are generally at the foot of the hills. After the harvest the people brew large supplies of spirit from the grain, and get drunk for several days together. These orgies generally result in fighting among themselves. The principal industry, besides agriculture, is working in iron. They make their own farm implements, spear and arrow heads, and pipe-stems.

The boundary-line descends from Dakka into the valley of the river Kam, and follows this river for 10 or 12 miles, leaving on the English side the small Hausa settlement of Gankita, a centre of the rubber-collecting industry. The Hausas, in fact, maintain a kind of sovereignty over all trade roads through this country. At the junction of the Kam with a small tributary from the east, the boundary leaves the river and runs from point to point over a block of rugged hills to the south. These hills form the fringe of a vast unknown tract of country in the Kameruns, the haunt of elephant, lion, bush-cow, and leopard. There are few villages on the hilltops; the inhabitants are wilder, the houses smaller and more squalid than those previously described. While erecting a chain of pillars on prominent peaks, a rapid plane-table survey of this country was made, and adjusted to several previously fixed points. The boundary now descends from the heights into the valley of the river Lumen, and a tract of country which previously belonged to the Kameruns is taken into Nigeria. Beyond its extreme beauty, this new area appears to be of little value. The country is practically impenetrable, and it was only possible to advance through it by sending a large party to cut ahead of the column.

The river Lumen runs for 20 or 30 miles under a dark arch of overhanging trees, the sky being invisible, and the water very cold, even in the heat of the day. We explored this river on rafts, made of waterproof sheets stuffed with grass, propelled with a pole. The disadvantage of this method was that, while it was easy enough going down-stream, it was necessary to cut a road along the bank in returning, the rafts being

useless against the current. The sands of the river are full of iron. Crossing the Lumen, the boundary again takes to the hills, following the top of a high ridge called Shina, pillars being placed on prominent peaks. The tops of all these mountains have evidently, in the past, formed the last strongholds of the pagans who were driven from the Kam valley by the Fulani or other stronger tribes; for near the summits there are often to be found a series of defensive walls, made of piled-up stones, the innermost ring being only a few yards in diameter, which seems to point to many a stubborn resistance. Whether the country was depopulated on account of conquest or of plague, it is difficult to determine, but judging from the number of ruins found, the fertile valley of the middle Kam must at one time have been densely inhabited. It is now entirely abandoned, except by great herds of antelope. Two mountains, Tukorua and Shekussum, form the last pillars of this high chain, which is a splendid natural boundary. The line now descends into a vast plain, which extends south and west to the river Teraba.

This plain is covered with thin bush, alternating with patches and belts of dense forest. At intervals small lumpy hills rise like islands from the general level. Of these the most prominent is called Maifula. This hill is geographically interesting from the fact that the eighth parallel of north latitude meets the eleventh meridian of east longitude on top of the peak. The boundary takes the form of a straight line cutting across the plain, leaving on the German side the Gongome people, who live in stockaded villages in the thickest part of the forest. The trees in the forest belts are of a great height. As the river is approached the ground becomes swampy even in the dry season. Here are the breeding-places of many kinds of biting fly, including the "tsetse."

Along the banks of the river Teraba are numerous Hausa and Jukum villages, through which pass important trade roads between Northern Nigeria and the Central Kameruns. The principal trade is in rubber, kola nuts, sheep and goats. There are no cattle on account of the fly.

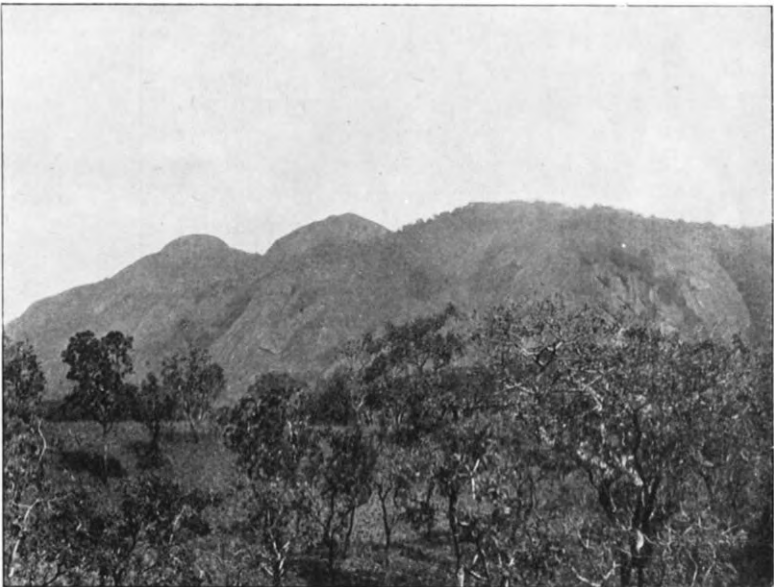
The Germans have established a customs post at Karbabi, near the boundary, where they collect an annual tax of twenty-five shillings from every trader crossing the line.

The Teraba is a large river which rises near Kontsha, south of the Shebshi group, and flows into the Benue near Amar. It is navigable by steamers to Bakundi, about 20 miles from the boundary, in the rains, and by canoe to Karbabi in German country. Ten miles above the point where the boundary-line crosses it, the river becomes unnavigable on account of rocks and rapids. As this river is typical of all the great southern tributaries of the Benue, a short description of one of the upper reaches may not be out of place.

Fifteen miles above Karbabi, the river bends sharply at right angles, forming noisy rapids. Above the rapids the bed is rocky with deep pools. Under the tall trees along the banks are open glades like an

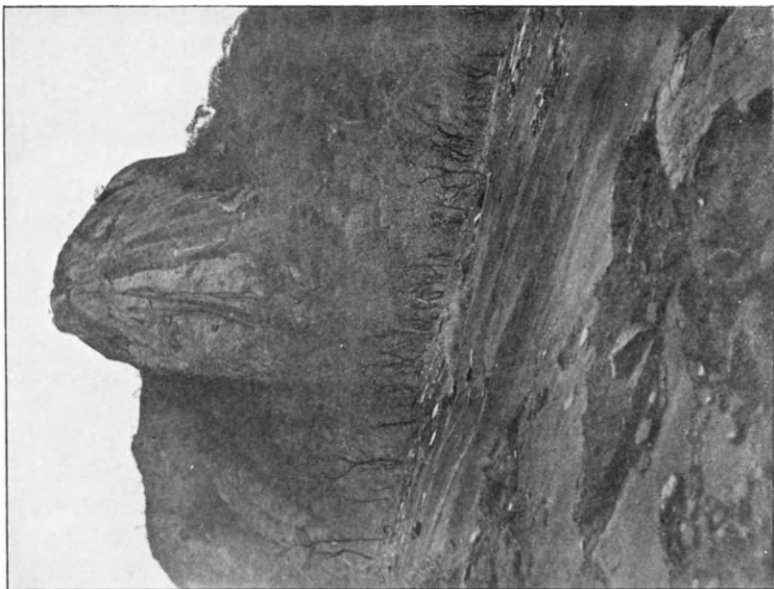


JUJU HOUSE AND SECRET GRAIN STORE.



VIEW IN ZUMPERI HILLS.





A TYPICAL HILL.



NEEDLE PEAK, KATSENA VALLEY.

English beech wood, entirely free from undergrowth, the ground being carpeted with soft moss. These are the feeding-grounds of huge herds of hippopotami, who live in the pools in the daytime. The river is here 200 to 300 yards wide, with high banks; the channel winds among huge boulders, forming a chain of pools, but leaving a narrow deep waterway among the larger rocks. The pools are like dark mirrors, silent and stagnant, yet bright and clear, reflecting the trees on the opposite bank in full detail. Wild geese and ibis fly overhead, whilst large alligators move about like torpedoes, with their noses out of the water, leaving long trails of bubbles on the surface.

There is no village within many miles of this place, and it was only with the greatest difficulty that we could obtain guides, as there are no tracks except those made by the larger game. The inhabitants of the pools were thoroughly startled at our approach. There seemed to be a sort of collusion between the different birds and beasts. The shrieking ibis warned the alligators asleep on the rocks in the sun, they in alarm slid into the water and warned the river-horse that something was amiss; the river-horse in his turn went pounding up-stream, under water, coming up to breathe at intervals behind the rocks and branches. The snorting was terrific. We estimated that there were between thirty and forty hippopotami in the largest pool. I have never seen a wilder-looking place; it seemed to be alive with everything except humanity.

The boundary, after crossing the Teraba, passes through the top of an isolated mountain called Kun or Beli peak. This is by far the most striking natural feature on the whole line. The base of the mountain covers an area of 10 square miles, and it rises in the form of a tetrahedron, to a sharp peak nearly 4000 feet above the surrounding plain. The upper slopes are clad with bamboo forest. From the top, on a clear day, 60 or 70 miles of the river Teraba may be seen winding across the plain, a bright band of silver against the dark green background.

The boundary next crosses the Gazabu river, a tributary of the Teraba, and ascends again into a hitherto unexplored tract of country in the form of a vast cup or crater, 25 miles in diameter, surrounded by a circular wall of mountains. This formation is a continuation of the Banjo highlands, and contains the headwaters of the Suntai or Bantagi river, a large affluent of the Donga. This river cuts its way through deep gorges, and the noise of its rapidly falling waters may be heard for many miles from the tops of the surrounding peaks.

Two of our party crossed this country along the boundary, travelling light with a few picked carriers. They suffered great hardships, and, owing to the thick harmattan, had to march entirely by compass. The interior of the crater was found to consist of deep ravines and numerous watercourses. The principal result achieved was the location of the main headwater of the Suntai, which, at the point where it is crossed by the boundary, tears through a deep rocky gorge, about 150 yards wide. This

river escapes from the circular wall of hills through the only visible outlet, near the village of Kwossa, on the English side.

The remainder of the two Commissions had to make a *détour* of 60 miles, to reach the point where the boundary-line emerges from the hills and drops from the edge of a high plateau into the plain of the Donga valley. This plain is gently undulating, with isolated hills, and like that of the Teraba, is covered with thin bush and forest belts. The water system is complicated, and was only determined with much difficulty. The trees along the numerous streams are of such a great height that they give to the gently undulating slopes the appearance of level ground, which often seems to be higher than the water-partings themselves, the latter being covered with relatively thin bush.

The inhabitants of this country are a mixture of Jukums and Zumperis, but there are numerous Hausa trading settlements. The principal "trade" is smuggling rubber and kola nuts into Nigeria without paying the German tax. The pagans live in "swallow-nest" villages on the heights, or on the crowns of low hills in the plain. They cultivate guinea corn and root crops. The village of Damia is a good example of the "swallow-nest" type. Perched on a ledge of rock beneath the edge of the plateau are numerous brown beehive-like huts, amid masses of greenery. All around is a continuous roar of falling water. Yams, cassava, and sweet potatoes grow in abundance in the interstices between the huts.

The boundary, crossing the plain, follows the Maio Tati, a small tributary, to its junction with the Donga river, near the deserted village of Gidan Sama. The river-bed is rocky, with a rapid current, and quite unfit for any kind of navigation at this point. Numerous tributaries on both banks form swamps in the dense forest at their junctions with the main stream. There is no doubt that many villages in this valley have been deserted on account of the biting fly which infest these thickets. The natives say that the Donga water is too "cold," and hurts the stomachs of men and animals. It is certain that prosperous villages in this neighbourhood have been depopulated by some kind of sickness. Here our horses began to sicken, and had to be treated with arsenic. The few cattle that we had brought from the north developed sores and died.

After following the Donga for 15 miles, the boundary ascends a tributary to its source in the Wanya mountains, a wedge-shaped block of hills. Amid these hills is a small tableland where are numerous ruins of large villages. According to the natives, many of whom are pock marked, whole towns have been decimated by small-pox within recent years.

On the top of this plateau are two prominent peaks known to the hunters and rubber collectors as the "Mountain of Death" and the "Mountain of Destruction."

The next plain traversed is that of the Gamana valley. Here the country begins to get much closer, and the bush very thick. Oil palms are first met with in this valley. The thickets along the Gamana river

are so dense, and the trees so large, that it was only possible to clear the undergrowth, and instead of a cutting, a causeway 6 feet wide of heavy stones was laid between the tree-trunks, to represent the boundary.

The country between the Gamana and Katsena rivers is inhabited by Zumperi pagans, who are cannibals and live on hilltops. They are of small stature, and remarkably repulsive appearance. Every other man appeared to be suffering from goitre or elephantiasis—whether the legacy of cannibalism, or the effect of drinking infected water, it is difficult to say. The people are industrious, and besides corn, grow large quantities of cotton and tobacco on the hillsides. They breed dogs for eating purposes, and all the villages are full of yelping curs, covered with sores like their owners. In one village a large deposit of human skulls was seen. The villages are well built and surrounded by mud walls and ditches. Among the numerous “ju-jus” found in the deserted huts was a grotesque mask, which was apparently kept to frighten the women. Any woman seeing it must die at once. When the community is short of meat, the local witch doctor puts on the mask and runs about the hills until he meets a likely looking victim, who is then killed and eaten.

The Zumperis are great hunters, and have killed off nearly all the game in their country except leopards. We saw an ingenious leopard trap, a heavy log suspended between two palisades, about 18 inches apart, the trap being baited with a goat. The tracks are full of pitfalls for animals, deep holes, with poisoned stakes at the bottom. The holes are covered over with sticks and grass, so as to look like a firm surface. The smaller antelope, once caught, cannot extricate themselves, even if they escape the poisoned stakes.

Along the banks of the rivers are numerous traps for bush-cow and the larger antelope: these take the form of poisoned spear-heads, hung from the branches of trees, over well-worn tracks to the waterside. The whole contrivance is very ingenious: the spear-head is fixed in a cross piece of wood, supported by two forked sticks, hidden in the trees. The point of the spear, which hangs vertically downwards, is dipped in deadly poison, and loosely wrapped in a leaf, so as to be practically invisible. Across the track is stretched a thong of creeper, as a trip wire, connected by another thong with a draw-knot in it to the suspended log of wood and spear. The unsuspecting bush-cow, going down his usual track to the water, touches the creeper stretched across the path with his forefoot, releasing the log and spear, which fall vertically on to his back. The slightest scratch means death in a very few minutes. The horns and bones of dead animals were found in many of these tracks.

The boundary through the Zumperi country, after crossing the Gamana river, traverses a plain much broken up by minor undulations, and rises sharply on to the rocky edge of a plateau about 2500 feet above the sea. This plateau is crossed in a straight line by a chain of pillars, placed on the tops of successive parallel ridges, which run east and west, and gradually

increase in height, until the Katsena valley is reached. The villages near the line were found to be deserted, the inhabitants having withdrawn further to one side or the other.

The Katsena is the last of the three great southern tributaries of the Benue. The valley is narrow at the point where it is crossed by the boundary, and shut in by high rocky mountain chains, with needle-shaped foothills. The reflected heat of the sun from the barren mountains on the north bank is very great. The river is navigable for light-draught steamers as far as Katsena Allah after the rains. Canoes are kept at most of the riverside villages near the boundary, but they are mostly used as ferry-boats or for fishing.

The Northern Nigeria-Kameruns section of the boundary being now complete, the Commissioners crossed the Katsena, and were met by Mr. Hives, the District Commissioner of the Obudu District, Southern Nigeria, and Lieutenant Webb, with thirty Yoruba soldiers. The Hausa escort returned to Yola. The German escort was increased to fifty men, as Oberleutnant Detzner anticipated trouble with the N'diri people further along the line, who, besides killing a runner, had been sending threatening messages.

South of the Katsena, the country is much split up by parallel ranges of mountains, running north and south, instead of east and west as hitherto. The intervening valleys contain large rivers, the most important of which is the Imba, which forms part of the boundary. From the south bank of the Katsena, a cutting was made through the bush to a point on the small river Wom, near the German customs post at Gaiama. The boundary now follows a river line for about 40 miles, between the parallel ranges which enclose the narrow valleys of the Imba, Maquari and Morn rivers. This country is practically uninhabited, but is frequented by hunters and rubber collectors. The bush swarms with game, and after the grass is burnt, great herds of antelope may be seen from the hilltops. Near the junction of the rivers Wom and Imba is a brackish pool or salt lick, where all kinds of animals congregate in the early mornings and late evenings. In the mud around the pool are countless tracks. From a clump of trees a few yards away it is possible to watch the herds approach. On a bright moonlight night, this is a sight well worth watching. Close to the water grow some beautiful purple ground orchids.

The Imba river is deep and unfordable, with a fierce current. Rising far in the Kameruns, it falls rapidly through a series of rocky gorges and empties itself into the Katsena at Ngadi. The natives call this the "Devil" river, owing to the violent current. Ascending this valley, the boundary crosses a small watershed and enters the country of the Agara or Misa Munchis, which is a plateau with steep undulations, numerous hills and lumps rising from the general level. These hills are full of magnetic iron and are covered with short grass. They appear to be frequently struck by lightning. The streams are very numerous and

thickly wooded, the trees being in January a bright scarlet colour like the maples in Japan.

The people inhabiting this district are a branch of the large and powerful Munchi tribe, which is subdivided into clans, those near the boundary being the Itu-avas, Inju-avas, and Iturubus. The Munchis have kept themselves free from contamination with the surrounding lower-class tribes, by whom they are greatly feared. The Munchis of the plains are of good physique and very intelligent, but those met with in the hills are physically and mentally inferior, and have evidently been driven to their present settlements under the law of the survival of the fittest. In their turn they have driven the other adjoining tribes of still lower class further into the hills, and taken possession of their land.

The Munchis are supposed to have originally come from a country called Para, somewhere north of Yola, where they were a vassal tribe of slaves belonging to the Fulanis, whose herds they tended. More than two hundred years ago, they are said to have become so numerous and independent, that they broke away from the Fulani yoke and became a powerful tribe, which has now spread from both banks of the Benue, south-west as far as the Aiwa river, and well over the German boundary to the south. Though commonly known as Munchis, they still call themselves Paras among themselves. Their present name appears to date from the time of their secession from the Fulanis, who, when they found that their slave herdsmen were getting independent and wandering too far afield, sent repeated messages telling them to come back and bring the cattle. No notice was taken of these messages, and the bearers were beaten and sent back. Hausa messengers were next sent to demand the return of the cattle. The reply sent back was "Mun chi." "We have eaten" (*Hausa*). The Fulanis then sent a punitive expedition, but were forced to retreat with heavy losses. Since that time the Munchis have retained their independence.

They have often been compared with the Zulus, many of their customs being similar. The majority of their laws are identical with the old Levitical laws, and are said to have been framed by Kuroka, a powerful chief, some hundred years ago. Their villages, unlike those of most other West African tribes, are well built and clean. The men are brave in war and industrious in peace. They have always kept aloof from other tribes, with whom their women are not allowed to intermarry. Several cases are known, however, of Munchi women being sold as slaves to Hausas, but it is probable that these were either bad characters or of weak intellect, and that this was a convenient way of getting rid of them. Their marriage customs are peculiar to themselves. In addition to the usual marriage by payment of a dowry, a still more common form is by exchange of sisters, daughters, and sometimes wives; but these exchanges are nearly always made between clans or sub-tribes residing a long way apart. Polygamy is rife: the dowry of a young girl is usually two cows,

but in the case of a widow or elderly woman, one cow or its equivalent, or even less, is considered sufficient.

The Munchis are of striking appearance. Those near the boundary are poor and wear few clothes. They go in for extravagant hairdressing, the most popular coiffure being a shaven head with one or two balls of hair left growing. Others wear their hair in beaded strands, falling over the side of the face. The tribal markings are a number of raised tattoo marks, in the form of a crescent, on both sides of the temple. These are universal, and are compulsory for both sexes, but the marks disappear in old age. Other markings are tattooed stars and rings on the forehead, chest and back, but these are all optional. The two front teeth of the upper jaw are filed into V-shape.

The Munchis are excellent farmers, and grow guinea-corn, yams, millet, beniseed, maize and ground-nuts in large quantities. They also cultivate cotton, from which they weave good cloth, dyeing it with indigo, which is grown round every compound. Each village has at least one public dye-pit. Tobacco is also grown, and is either used as snuff or smoked in large pipes with bowls of clay and stems of smelted brass.

They are clever workers in wood and iron, making chairs and stools, in the carving of which they display some art and much ingenuity. The iron ore found locally used to be smelted in large quantities, and the remains of old workings can be seen in many places, but trade iron bars are now more generally used: from these spears and arrow-heads, hoes, knives, and daggers are constructed. The small knives are curious in shape, the handles being iron loops, which fit over the palm of the hand. The hoes have broad, heavy blades, fitted into short, crooked wooden handles, and are most effective agricultural implements. The principal weapons of offence are bows and arrows, the arrows being poisoned with a compound of crushed and boiled strophanthus seeds, snakes' heads, and poisonous plants, etc., which when freshly made is very potent, the slightest scratch causing a man to die in agony in twenty minutes. The fumes from this poison, when it is being boiled, are very deadly, even in the open air. The mixing is always done by one of the numerous ju-ju men, who profess to have antidotes, both external and internal, but there is no authenticated case of a cure having been seen by a European up to date.

In every village there is a large war drum, constructed from a hollowed-out log, over which is stretched a hide. The Munchis are expert in the use of these drums for signalling purposes, and messages are sent in code from village to village throughout their country with great rapidity and accuracy.

They are very fond of dances and plays, which, accompanied by songs, are held on the occasion of the death of a chief, or the headman of a compound, also at births and marriages. These dances are often kept up for several days, when the host is rich enough to supply the food and drink, the latter being an intoxicating liquid distilled from guinea-corn.

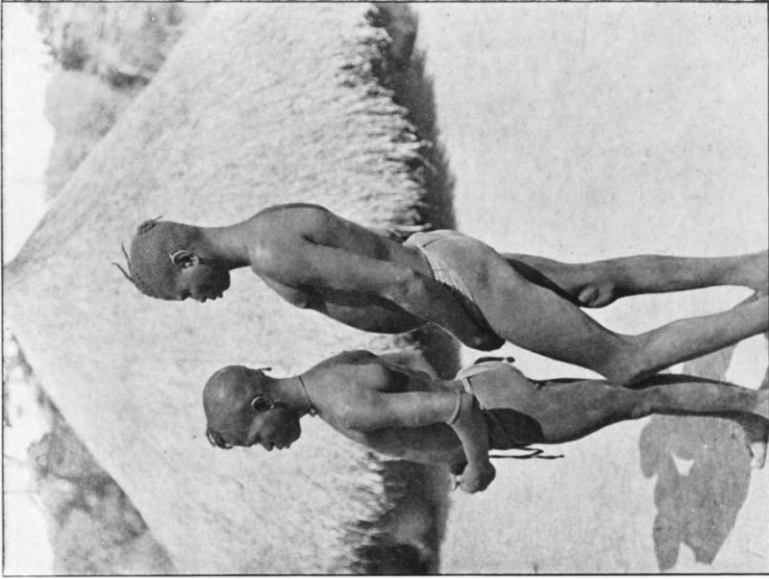


PUTTING IN A BOUNDARY POST.

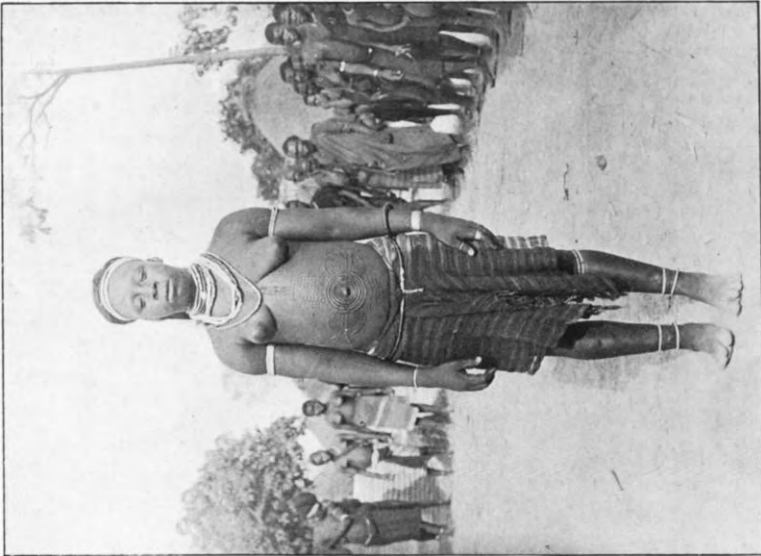


RIVER MAHANA.





DAKKA PAGANS.



MAUCHI GIRL.

About a hundred and fifty women of the Iturubu tribe danced for us, forty of them being the wives of one chief. The principal wife, a very old woman, was studded with beads, some of which were the size of a golf ball. They were all hideously ugly, but possibly the more attractive ones had remained at home. The dances showed a great idea of time, if not of music.

All the Munchis met with were perfectly friendly, and besides clearing camps and building houses for the Commission, brought in large quantities of supplies.\*

The boundary leaves the river-line in the Iturubu country, and runs in a straight line across the hills to the junction of the Amiri and Mahana rivers, following as far as possible the tribal boundaries. These two rivers are of extreme beauty, the banks being steep with magnificent trees branching overhead. The Amiri descends rapidly from the mountains, and forms a series of deep clear pools full of large fish. Long ribbon orchids hang from the branches over the pools. The surrounding country is open grassland, and the prevalence of a yellow ground orchid gives the landscape the appearance of English meadowland full of buttercups.

The Amiri river forms the international boundary as far as its source in the high mountain range, which is the watershed between the Benue and the Cross river. Looking at this range from the north, it appears to be a continuous ridge, between 5000 and 6000 feet above the sea. Long grass-covered spurs project from the main ridge at right angles, the intervening valleys being thickly wooded. Small villages are perched on every col, and there are extensive yam-fields on the slopes. The road up the Amiri valley passes through the villages of the Olitti and Atoho people; these villages are large, with roomy, massive houses in small stone-walled compounds, protected with loopholed thorn palisades. The people are armed with guns, and had threatened to resist the passage of the boundary commission. As a matter of fact, there was only a passive resistance. The road over the pass ascends and descends one spur after another, crossing small lateral valleys full of oil palms. At a height of 4000 feet open grassland is reached, and the Amiri is left far below in a deep ravine. The road, still ascending, winds round a high grass peak, and descends on to a small plateau. After no less than five separate ascents of 2000 feet, with alternate descents of nearly half as much again across the intervening ravines, the main ridge is reached, and the path follows an almost razor-like divide, which is part of the main watershed, and is about 5000 feet above sea-level. The view from this place far surpasses anything I have yet seen in Nigeria. To the north and east, as far as the eye can see, stretches the open grassland, with range upon range of blue mountains

\* The above information was collected by me from the natives themselves, with the assistance of Mr. Hives, the Political Officer attached to the Commission, who has spent many years in the country, and is compiling a work on the history and customs of the Munchi tribe.—W. V. N.

in the distance. Across the plain sweep parallel shining rivers, disappearing through gaps in the hills to the north. To the south and west, the great forest-clad plain extends to the Cross river, whose valley 40 miles away is marked by a long bank of clouds. All around is high tableland, cut up into small plateaux by numerous ravines, down which countless streams tear headlong to the plains.

The main watershed runs north-west, and is flanked at right angles by the Sonkwala mountains, 15 miles within British territory. These peaks are over 6000 feet in height, and overlook the narrow valley where severe fighting took place in 1908, the combined Boundary Commissions, under Colonel Whitlock and Oberleutenant von Stephani, being attacked by the natives.

At that time all the existing maps showed this place, Sonkwala, to be actually on the provisional boundary-line, and the road through the valley to be the only practicable route over the watershed. The people are truculent to this day, and the present Commission was screened from their attentions by the interposition of a strong patrol.

The main plateau is cut in two by the valleys of the Amiri and Makwai rivers, the headwaters of which spring from this razor-like divide. A better natural boundary could hardly have been devised, for the one reason that it is almost, if not quite, impassable. The plateau bears a strong resemblance to the Sussex Downs, being greatly undulating and covered with thick, short grass. Mr. Hives, who has had much experience of cattle raising in Australia, considers this an ideal place for the purpose.

Descending from the plateau to the south, the forest line is reached at about 4000 feet above the sea. Here the road plunges into darkness, descending a tree-clad precipice. After a slippery descent of about 2000 feet, the first villages of the Anyangs are reached. These people are of an entirely different type from those north of the watershed. They are almost invariably at war with the nearest grassland people. Their villages are hidden away in the forest, and consist of long, low, rectangular mud houses with roofs of palm-leaves, on either side of a squalid street. The people are very poor, and live almost entirely on plantains, their farms being in small clearings, widely separated. Pigs are kept in large numbers in the villages. Further south, the people met with are Bokis, who extend to the Cross river. Their habits and customs are well known.

The boundary through the forest is marked by pillars on the cross-roads; the positions were fixed by pushing the perambulator measuring wheel from known points, as it was not possible to see any hills.

The people of each village cleared the roads for us as far as their own boundary. The village boundaries, although in dense forest, are well known to the natives, who are extremely jealous of their rubber collecting rights. Every man carries a matchet, and they are very handy with this implement.

No guinea-corn grows south of the watershed, much to the disgust

of our Hausa and Fulani carriers, who refused to eat plantains, and had to be fed on rice, which was sent for from a trading store on the Cross river. The experiment of taking these natives of the north into an entirely new country, such a great distance from their homes, was otherwise a complete success, and many of them were so impressed with the trading possibilities of the country, that they wished to remain in it.

The geological structure of the boundary zone, taken as a whole, presents few features of interest. The rocks are entirely crystalline and igneous ; there are no specimens of the cretaceous and tertiary rocks, which are known to have a large development in parts of Southern Nigeria and the Kameruns. Traces of tin were found in some of the rivers flowing north from the watershed of the Cross river and Benue system. As these were accompanied by small quantities of tourmaline, and the watershed plateau itself consists partly of kaolinised granite, which often goes with tinstone, it seems likely that this mineral exists in the neighbourhood. Nearly all the rivers crossing the boundary contain traces of monazite, which mineral seems to be rather characteristic of the whole district.

The line of the watershed between the Benue and Cross river systems divides sharply the boundary zone into open bush country and dense forest. North of this watershed, the whole surface of the country is covered either with long grass or thin bush, with occasional belts of forest along the streams. These belts are the most distinctive feature of the landscape. The Hausas call them "curmi," the Germans "Galleriewalder." Looking down from the hilltops into the plains, the whole water system is easily traced by the surveyor, as the trees along the streams remain a brilliant green, even at the height of the dry season, when all the intervening country is parched or blackened by fire.

North of the Shebshi mountains, the smaller streams are generally bordered by grass, and are not so easily distinguished. Here also the bush is much thinner, the trees smaller and more distorted, being an easier prey to the long lines of fire which rush through the bush during the annual grass-burning. South of the Shebshis, the bush is thicker, the trees taller, and the forest belts denser ; the reason being that, the country being better watered, the moisture never entirely evaporates, even in the dry season, and the fire is unable to get any hold on the grass or bush anywhere near a stream.

Along the Donga and Gamana rivers, the "curmi" is often half a mile in depth. Here the fire attacks the grass in patches, stripping the blades, and leaving the stalks in the shape of thick half-burnt canes, which seem to gain in strength as they take on new verdure each year.

The "curmis" are mostly full of vine rubber (*Landolphia*). Tree orchids are also found in great profusion, the commonest being the long ribbon species. The seeds appear to be brought by the south winds, and cling to the damp bark of the trees during the rainy season. The red spiky lily (*Haemanthus Katharinæ*) is common in the bush, but it does not

grow to such a size as the specimen from Natal at Kew. There are also numerous ground orchids, the commonest being a mauve variety about 6 inches high. This grows generally under trees, amid decayed leaves and grass. On top of the mountains and high plateaux, the grass does not grow very long. The hollows are filled with clusters of trees kept a brilliant green by perennial springs. On the boulders above the 4000-foot level are various kinds of rock orchids.

Turning now to the forest country south of the Benue-Cross river watershed: the forest line is sharply defined and follows approximately the 4000-foot contour on the southern slopes. The forest extends without a break to the Cross river, and from there to the sea. The trees grow to a great height, and it is possible to march for hours without seeing the sun. The undergrowth, on the other hand, is less thick, as there is no long grass, and roads are more easily made, but they have to be cleared at frequent intervals, otherwise they quickly become choked by weed and barred by fallen trees. The atmosphere is damp, and there is a heavy oppressive scent. All through the rains great banks of fog sweep up from the south, clinging to the treetops.

The whole of this forest abounds in valuable timbers, such as ebony and mahogany. Many of the latter trees are of great girth. The oil palm, the most valuable product of Southern Nigeria, grows here in wild profusion.

The rainfall is greater in the boundary districts than in most other parts of Nigeria. The rains begin in March, with a few violent tornadoes in the hills, which become more frequent and less violent in April and May. From May to September, heavy rain falls almost every day. By the end of September the rivers are in full flood and mostly impassable, large tracts of low-lying country are under water, cutting off all land communications between the Niger-Benue system and the boundary districts. In October the steady rain ceases, and is followed by more tornadoes, which finally stop about the end of the month, when the dry season sets in, scarcely a drop of rain falling for a period of five months, after which the April tornadoes begin again.

The temperature is at its lowest in January and February, when the "harmattan" wind blows steadily from the north-east for several days in succession, filling the air with minute specks of sand from the desert, and obliterating the whole landscape with a cloak of fog, which varies in density according to the wind. This fog is noticeably less dense on the tops of the mountains.

North of the watershed the principal crops are guinea-corn, millet, ground nuts, cassava, and sweet potatoes; cotton and tobacco are also cultivated by the Chamba pagans, Zumperis, and Munchis. The corn is planted in April at the end of the rainy season, the method of cultivation being as follows. The ground is first cleared of weeds and the remains of the last year's crop. It is then prepared for sowing by digging shallow trenches

with a rough kind of hoe, the earth being piled up to form ridges between the trenches. Guinea corn (*Sorghum vulgare*), the staple food of the country, is planted in these ridges. It grows to a great height, often 15 to 20 feet, and is harvested in November. Millet is planted in the furrows; it ripens rapidly and is harvested in July. Cotton is ready for picking after December; tobacco and cassava are cultivated during the dry season on the hillsides, the streams being used for irrigation.

From October to March, during the dry season, the natives are engaged in stacking their corn into mud-walled granaries, and threshing what they require for immediate use. These months are also spent in repairing the damage done to the villages, grass being cut and tied into bundles for thatching roofs, and making new zana matting. The dry season is also the hunting season, when the long grass has been laid low by fire. This grass burning is an annual institution, although the Government has given orders prohibiting it, on account of the damage done to trees. But the hill tribes care very little for trees or grass, and a good deal for meat. So a few weeks after the burning, when the blackened ground becomes carpeted with soft green shoots, the hunter sallies forth with bow and arrows to the well-known haunts of game, where by careful stalking or lying in wait he gets near enough to flick his poisoned shaft, and then follows up the stricken quarry until it dies in its tracks.

Most of the animal life common to the rest of Nigeria was met with in the districts adjoining the boundary, the principal exception being rhinoceros and giraffe, which do not appear to exist south of the Benue river. There are now few elephants left in the hills south of the Katsena. They appear to have moved further east into German country. Bush-cow are very numerous, especially on all the high grass plateaux.

The rocky hills in the Kam valley and in the Zumperi country are infested with leopards. The valleys of the large rivers crossing the boundary are alive with kob, hartebeeste, and waterbuck. Other species of antelope, such as roan, reed-buck, and bush-buck, are less common. Warthog, bush-pig, and several kinds of duiker are frequently met with. The upper reaches of the Teraba and Donga rivers are exceptionally full of hippopotami, as many as thirty having been found in one pool. They do much damage to the crops belonging to some of the riverside villages.

Among the smaller animals are several different kinds of wild cat. The black and white colobus monkey was seen in one place only. Other monkeys ranging in size up to baboons are common. Several python were killed, the average length being about 12 feet.

As regards birds, the sandy reaches along the banks of the larger rivers abound with crown birds, marabout, and egrets. Bustard were seen, but are rare. Guinea-fowl and bush-fowl are numerous near the farms. There are many fish in the rivers; they are mostly too bony to be edible.

There are practically no mosquitoes along the whole of this boundary, but "tsetse" fly are common in certain definite areas, which are well known

to the natives. The small sweat flies gave us more trouble than any other kind. In many places it was necessary to keep continually lighting fires of damp grass and leaves, the smoke from which kept them out of our eyes while working. They are said to be a kind of miniature bee, and make very good honey. They appear to be more troublesome after the annual grass burning, the fire having dried up the leaves on which they live in the rainy season.

On April 4, 1913, the two Commissions reached Obokum, the British customs station on the upper Cross river, a picturesque riverside village surrounded by waterfalls. The last pillar was placed at a bend of the river, about  $2\frac{1}{2}$  miles above this place. On April 12, the maps and agreement were signed and the two parties separated, after having worked together for more than six months without a single point of difference. The whole demarcation had been carried out on the give-and-take principle, within the limits laid down, neither side gaining or losing any appreciable amount of territory. Lieutenant Kyngdon and Doctor Lobb returned by the shortest road to Ibi in Northern Nigeria, to pay off the Hausa and Fulani carriers, who could not be left in a strange country. The remainder of the Commission proceeded to Calabar, a distance of 250 miles down the Cross river, while the Germans marched to their railhead in the Manenguba mountains, a twelve days' journey, on their way to Duala.

It is hoped that this demarcation will be final, and that this, the least-known and most mountainous frontier in West Africa, which has taken so many years to determine, is now permanently established.

There should be no local frontier difficulties, as the officials on both sides are now furnished with an identic map, whereas hitherto they have had no maps at all.

As regards the country taken as a whole, I am bound to say that it exercised over us an extraordinary fascination, stronger even than the well-known "call of the coast." While allowing for all the hardships and discomforts inseparable from mountaineering in the tropics, there still remains that indescribable "glamour" which is always associated with a mountainous frontier. A natural borderland lies among these long blue ranges with their sharp-pointed peaks and untrodden valleys, amid great silent open spaces, and illimitable areas of virgin forest.

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Major LEONARD DARWIN (Vice-President, before the paper): Those who attend our meetings regularly know how often we have received valuable information from those who have taken part in various boundary commissions. Whether we are to be congratulated as a nation for having so many miles of frontier in tropical countries which march with the territories of other great European nations may perhaps be questioned. But at all events it has this advantage, that it gives opportunities for these boundary commissions, from which we have acquired so much knowledge. Boundaries between two states are apt to run over countries which neither party especially desires, and therefore which are rough and unknown. To-night we are going to hear about the



# WEST AFRICA

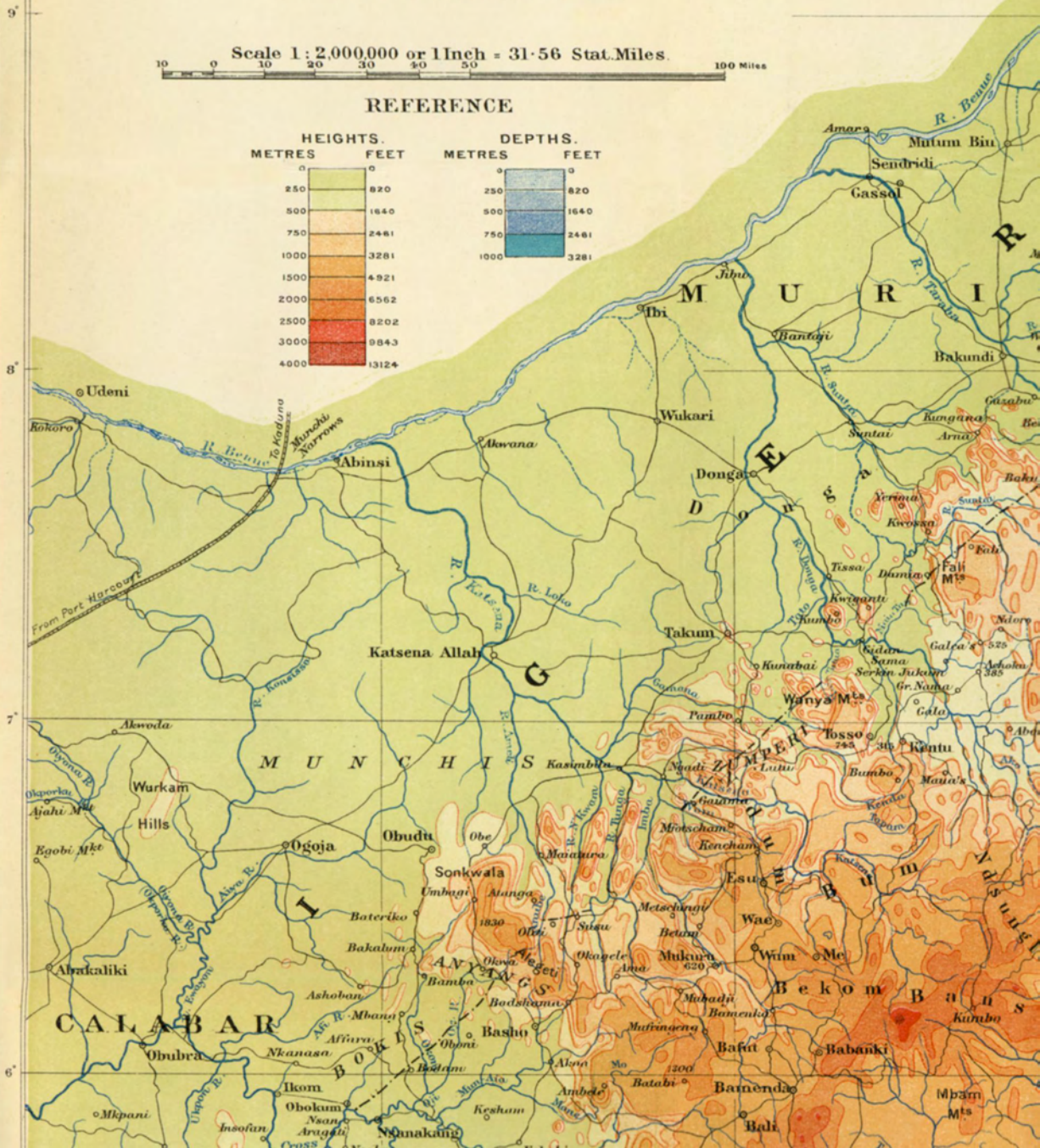
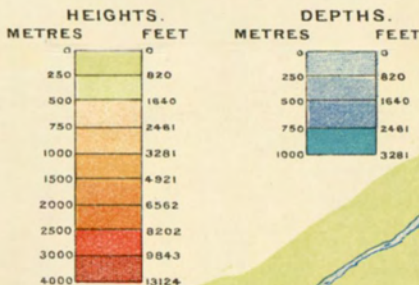
Map to illustrate the paper  
on the  
**NIGERIA-KAMERUN BOUNDARY COMMISSION**  
of 1912-13.  
by  
**CAPT. W.V. NUGENT, R.A.**

*This map is based upon von Kamerun mit Togo by Max Moisel, from German Officers of the Commission, combined and published in the Mittheilungen, Band xxvi. 1913.*

**Nigeria-Kamerun**  
Railways open .....  
" construct .....  
Roads and Tracks .....  
Heights given in figures  
are in metres.

Scale 1 : 2,000,000 or 1 Inch = 31.56 Stat. Miles.

### REFERENCE





11°

12°

This map is based upon the Hohenschichtenkarte von Kamerun mit Togo, on the same scale, compiled by Max Moisel, from the Surveys of British and German Officers of the Nigeria-Kamerun Boundary Commission, combined with other information; and published in the Mitt. aus den deutschen Schutzgebieten, Band xxvi. Heft 4.

**Nigeria-Kamerun Boundary** -----  
**Railways** open -----  
 " constructing - - - - -  
**Roads and Tracks** - - - - -  
 Heights given in figures on the map are in metres.











Published by the Royal Geographical Society.

**NIGERIA - KAMERUN BOUNDARY COMMISSION.**  
**NUGENT.**