

GERMAN EAST AFRICA



A. F. CALVERT'S MILITARY MAP OF GERMAN EAST AFRICA.

Frontispiece.

GERMAN EAST AFRICA

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PREFACE.

THE creation of a German colony in East Africa was the conception of a private individual, and he embarked upon the enterprise with a privately subscribed capital of less than £10,000. The scheme was submitted to Prince Bismarck, who not only refused his support, but went out of his way to announce that the State would not be responsible for the life of the private individual or for the safety of any property he might acquire on the African mainland opposite the Island of Zanzibar. Why should the Imperial Chancellor, who was responsible for the seizure of South-West Africa, the Cameroons and Togoland, have been so scrupulously careful to discountenance any extension of Germany's African Empire on the East Coast? It may be that he had no faith in Dr. Carl Peters, and anticipated the failure of his mission, or he may have felt that it was too soon to reveal his designs regarding a region in which British influence was paramount. Whichever explanation may be correct, Bismarck washed his hands of the intrepid adventurer and his affairs, and called Europe to witness the correctness of his attitude. He unbent somewhat towards Dr. Peters when he returned to Berlin in 1885 with a sheaf of treaties, which caused him to be recognised as the lessor of a territory as large as Southern Germany, and the Imperial Charter which was conferred upon his German East Africa Company shortly afterwards.

bore the signature of Bismarck under that of the Emperor.

Having thus admitted the establishment of German interests in the Zanzibari region, the Chancellor took steps to have them adequately protected, and when the Sultan of Zanzibar protested against the depletion of his possessions on the mainland, a German squadron made a demonstration in force in the harbour of Dar-es-Salaam, and the British Consulate received instructions to co-operate with the German Consul-General in safeguarding German interests. It is no part of my purpose to attempt to explain the attitude or the action of the English Colonial Office in the matter of German aggression in this part of the world. Whether the Premier and the Colonial Secretary were convinced of Germany's civilising power and the honesty of her intentions, and really welcomed her benevolent intrusion into this slave-trading region, or whether the "man of blood and iron" was a veritable bogey of whom English statesmen stood in awe in the early 'eighties, it is certain that they threw their weight into the scales against the Sultan of Zanzibar, and with this assistance and the presence of the German squadron the German East Africa Company were able to establish the claims put forward under the illegally obtained treaties. The details as to the extent of the territory ceded by the local chiefs, who had carried out negotiations with Dr. Peters without reference to the overlordship of the Sultan, had to be adjusted, and again Britain offered to assist in the capacity of

arbitrator. The magnanimity with which she discharged that duty is revealed by the fact that in an inexplicable splurge of hysterical generosity—a generosity that is only exercised when dealing with another person's possessions—she confirmed the German East Africa Company's rights to the whole of the rich Kilimanjaro region, including a concession that had previously been secured by Mr. (now Sir) H. H. Johnston. The Sultan was permitted to retain his island and a six hundred mile strip of coastline on the mainland.

The German Chancellor, what time these events were happening, continued to observe his correct attitude. He revealed no designs of making territorial acquisitions on behalf of the Emperor; he simply extended the protection of the State to private interests acquired by a Chartered Company. Nothing could have been more proper or less aggressive. But in 1887, while Dr. Peters was endeavouring to obtain from the Sultan of Zanzibar a concession for the ports of Dar-es-Salaam and Pangani, together with a lease of the whole coastline, he was suddenly recalled to Berlin. In order that his interests might not be injuriously affected by his absence, the negotiations upon which he was engaged were continued on his Company's behalf by the Government, and the agreement by which the Sultan leased the customs of his kingdom to the German East Africa Company was signed by the German Consul-General in Zanzibar in the following year. The Consular official was still acting as the agent of the Chartered Company,

probably because Bismarck foresaw the trouble that would attend the Company's attempt to enforce the rights obtained under the Sultan's concession. The insurrections of the Arab Valis, who had been masters of the coastal districts in which the Company's officers who did not save themselves by flight were murdered, proved the correctness of the Chancellor's forecast, although the German East Africa Company's officials are strongly suspected of having engineered the revolt. Months of massacres followed, the situation was palpably beyond the control of the Company, and the aid of the Government was invoked to suppress the spreading insurrection.

In 1899 Commissioner von Wissmann was sent out to raise a force of Zulus and Soudanese, wherewith to pacify the natives. The Reichstag passed a new law purporting to have for its object the suppression of the slave trade in East Africa, and the sum of £100,000, which was voted for the enforcement of the measure, went to finance von Wissmann's campaign. The Commissioner tackled his task with amazing vigour and thoroughness, but, even with money and mercenaries at his command, the revolt would not have been stamped out by the end of the year if Great Britain—always ready to ally herself against the slave traders—had not despatched a squadron to co-operate with the German fleet in establishing a blockade of the Zanzibar coast. Having restored order in the disaffected districts, the German East Africa Company, in 1890, proposed to ratify all agreements covering the territories already acquired,

by the payment of a further sum of £200,000 to the Sultan. The negotiations were conducted by the representatives of the Company, and it was not until the Reichstag passed a credit of £525,000 for the completion of the purchase and the maintenance and development of the new "colony" that England awoke to the fact that a territory with an area of some 364,000 square miles had been made a protectorate of the German Empire.

It may be contended by the defenders and explainers of the Teuton methods of territorial expansion in Africa, that Germany's insuperable difficulty as a colonising power was, as Lord Haldane has lamented, that she came into the field a hundred years too late. When the idea of acquiring oversea dominions fired the cupidity of Prince Bismarck, very little of the unappropriated globe was available for colonisation, but having bluffed, lied and intrigued herself into the recognised possession of over 100,000,000 square miles of African territory, carrying a total native population of nearly 14,000,000 souls, she proceeded to administer it with characteristic forcefulness and assurance. The British ex-Minister for War watched Germany's policy of colonial development with sympathetic interest; he affected to find her studying and applying English methods to the duty she had undertaken; and he contended that "she was penetrating everywhere to the profit of mankind." If the profit of mankind was any part of her intention in Africa, Germany may be entitled to our commiseration, for neither in the west, south-

west, nor the east of the continent, have her aspirations been understood or appreciated by the natives under German rule, or by the white inhabitants of neighbouring provinces. That Germany investigated English methods is true, and if she had applied herself to the study with an unprejudiced and receptive mind, she would have discovered that British colonies are not mere offshoots of the home country, but component parts of the Empire, bound to her and to each other in practical as well as sentimental bonds of allegiance. It would seem that nothing but their own arrogant stupidity and wilful perversity caused the German administrators to misconceive this first principle of successful colonisation. As Sir Francis Piggott has pointed out, we have made no secrets of our methods. German students would have received truthful answers to their inquiries, and they were free to examine the workings of those methods in every quarter of our Empire. Yet, in spite of the welcome we extended to the subjects of the Kaiser, and of the generosity with which we placed at their disposal the experience of centuries of Empire-building in all parts of the world, "they have misunderstood what was so plain, and the hopelessness of the blunder which has resulted from the misunderstanding has been ruthlessly demonstrated by the hard facts as the world knows them to-day."

In spite of the results that had been achieved by English methods down to 1884, the new-born German Colonial Office convinced itself that the British conception of colonisation was utterly wrong, and the

German system was entirely right. Germany instituted a system of Government by professors, and her professors betrayed the nation into a war against freedom, civilisation and humanity. Neitsche and von Treitschke preached the holy gospel of the destruction of the British Empire, and the erection of a Greater Germany upon the ruins. Bernhardi justified the policy on the grounds that "the German nation, from the standpoint of its importance to civilisation, is entitled not only to demand a place in the sun, but to aspire to an adequate share in the sovereignty of the world far beyond the limits of its presence sphere of influence." The one invented the aspiration and the other justified it; it only remained for the late Professor Cramb to explain how feasible it was to put Germany's predatory theories into practice. He had no difficulty in demonstrating to the entire satisfaction of himself, and a nation eager to be convinced, that the English had lost, if we ever possessed them, "the qualities of pride of birth, valour in arms, and creative genius in religion," and were become "a timorous, craven nation, trusting to its fleet." He declared that our failure to govern India was conspicuous, ignoble and complete, that our failure to hold Egypt was inevitable, and that our colonies were shivering with impatience "under the last slight remnant of our yoke."

If German statesmen could accept such representations of the results of all our efforts and sacrifices in the construction and maintenance of our Colonial Empire, they were not more blind than Lord Haldane,

who saw Germany "penetrating everywhere to the profit of mankind," and having these evidences of our incapability and failure before them, they decided to replace our system by a policy of their own. That policy was characterised by the defects of the German temperament; it led from misunderstanding to maladministration, from blunders which were hopeless and incomprehensible, to inevitable disaster. The Colonial Party's official organ in Africa, at the very outset of her African enterprises, declared that "Germany had nothing to learn from England or any other colonising nation, having a method of handling social problems peculiar to the German spirit." Mr. Evan Lewin, in a trenchant article contributed to *The Nineteenth Century*, writes: "Germany has from the first stood for scientific methods in colonisation, and with true German arrogance she has applied fixed rules to flexible problems. Such success as she has had—and in many directions this success must be freely admitted—has been neutralised by certain things that have tended to throw ridicule upon the efforts of her scientists and social reformers to impose, by the aid of the military caste, rigid rules and inflexible regulations upon the natives. The complex military and administrative machinery of the Fatherland has been little suited to the soil of Africa, and the scientific methods of dragooning the natives into a dull comprehension of the meaning of German *Kultur* have cast discredit upon the excellent work that German administrators have performed in other directions.

Germany had indeed much to learn from England, but she was too proud and too imbued with the consciousness of her own superior merit to stoop to Anglo-Saxon levels."

The truth of the foregoing is emphasised, after thirty years of experiment in the settlement of Germany's African colonies, in the pathetic admission, on January 13th, 1914, of Professor Bonn of Munich University: "We are only just now beginning to understand native administration." The belated understanding, which the Professor optimistically claims on behalf of his countrymen, has come too late to be applied to the problem. The sun is setting upon the efforts of Germany as a colonising power. As the High Commissioner for South Africa has declared, Germany really never colonised at all, either in Africa or anywhere else, and, by her disregard of the rights of humanity, her violation of treaties and the brutality of her treatment of natives, she has made it impossible for Germany and Britain to march again, side by side, in the work of colonisation in Africa. In the first place, the Germans have made it plain to the whole world that they have no genius for the responsible task of colonial administration, and in the second place, they will be left with no colonies to administer. When the war is at an end, the territory in Europe that the hordes of the Kaiser and his ally of Austria have overrun will be cleared of the enemy, and Belgium, Poland, Serbia, Roumania, and the northern provinces of France, will be restored to the States from which they have been temporarily

wrested, but the possessions which Germany is losing, or has already lost, in Africa, China and the South Pacific will be lost to her for ever. The egregious Herr Dernburg has assured the world at large that his Imperial master will consent to no terms of peace that do not include the return of all her lost colonies to Germany, and that irrepressible humourist, Dr. Solf, in December, 1914, issued an official statement offering to "cease hostilities which the South African Government forced on Germany, provided that the Union Government also refrains from hostile action against German territory, and evacuates regions already occupied by Union Forces." The German Colonial Secretary further protested that Germany never had any intention of occupying, either permanently or temporarily, the territory of the South African Union.

The Rev. William Greswell wrote an article in *The Fortnightly Review*, over thirty years ago, in which he warned his countrymen that the annexation of South-West Africa by Germany was no sporadic effort, but part of a plan—"a series of ventures and projects thrust forward by keen business men, backed by official support and directed by a master hand. . . . The real value (of South-West Africa) lay in the proximity of the region of the Boer States, disaffected to Great Britain. The land was not taken for *bona fide* colonisation, but only as a *point d'appui*." This warning was ignored by the English public in the early 'eighties, but the activities of the Germans in South-West Africa were all directed

to placing the colony in an offensive and defensive position. Compulsory military service gave the authorities a standing army of ten thousand trained German soldiers, fully equipped with arms, stores and military supplies. This force, it was explained, was a precautionary measure of defence against surprise risings on the part of the unwarlike and unarmed Ovambos, who inhabit a district situated over 1,000 miles from the German military headquarters, but the explanation scarcely tallies with the facts that the headquarters of the army and the arsenal were located at Keetmanshoop, within 150 miles of the Cape Union border, and that the railway lines were strategically planned towards that objective and constructed on what is still called the Cape gauge. For many years past the German military preparation in South-West Africa had been a menace to the people of the neighbouring Dominion, and the abortive insurrections of Maritz and De Wet are further proof of the designs of the German Government. Unfortunately for Germany her professors were in error when they trumpeted their faith in the instability of British rule, and they blundered again when they predicted the disintegration of the Empire in the first clash of international conflict. All their conclusions were based on inefficient observation. If the German system of colonisation is entirely right, why are the Kaiser's subjects in Alsace-Lorraine weeping tears of joy at the prospect of speedy liberation, and why should the Togolandese have welcomed the allied Anglo-French forces with tumultuous

enthusiasm? If the British conception of colonisation is utterly wrong, and our hold upon our dominions is so insecure as to justify the enemy's prognostication of the inevitable dissolution of the Empire, why do we find the white and native races of all our colonies banded together to protect that Empire against the common foe?

Whether the facts revealed by the only answers that can be supplied to such questions as the above have been appreciated or not in the Wilhelmstrasse, the professorial ostrich of Germany, with his head firmly buried in the mire of his own platitudinous verbiage, is officially unacquainted with them. As recently as February of 1915, Professor Meinhof, of the Hamburg Colonial Institute, delivered a lecture on "Our Colonies and the War," in which he declared that these possessions are absolutely necessary to Germany if she is to engage in world trade, and to pursue, unhindered, her activities in missionary enterprise." Professor Meinhof evidently has not taken the trouble to peruse the hundreds of columns of reports of the Reichstag debates which are taken up with tales of fiendish cruelty practised on the natives of Africa by such notorious ruffians in authority as Prince Arenburg, Carl Peters and Chancellor Leist; he has no information concerning the details of the horrors of the Herero war; he is still as convinced as Lord Haldane that Germany's work in Africa is consistently benevolent and beneficial. It was the missionary aspect of colonial expansion which mainly interested the professor, and

the "general observations" to which, for fairly obvious reasons, he confined himself, were mainly concerned with the missionary's task of introducing German *Kultur* into lands hitherto benighted and corrupted by other white nations. "Germany," he said, "conducted its colonial operations in a different spirit from the methods employed by England, and East Africa is proof of the success of the German methods. Germany seeks the solution of colonial questions from a moral, not from a business, point of view, and it is this method of solution which is alone worthy of the German nation."

In the following pages I have not considered it necessary to devote much space to the examination of the missionising efforts of the German administrators. My purpose has rather been to describe, for the benefit of future British settlers, traders and investors in Germany's East African colony, the nature and resources of the territory that General Smuts and his army are acquiring for the Empire, and the lines upon which the German authorities have developed them, in the past thirty years, at a calculated outlay of £50,000,000. Dr. Peters, who, having served his purpose as the cat's paw of the Chancellor, was recalled and disgraced in 1895, was tolerably conservative in his estimate of the value of the territory he had acquired for the Fatherland. "Take it all in all," he wrote, "it is not a colony of the first class. As a whole, it may be described as a good agricultural country." Although fairly well watered, he could not pretend that it was a British India, but compared

with South-West Africa, the Cameroons or Togoland, he declared it to be "one of the most priceless of the colonial pearls in the Imperial Crown."

The territory hitherto known as German East Africa possesses three distinct plantation areas, six chief sea-ports, all having good harbours, two railway systems with a total of a thousand miles of line, and a labour problem that under Teuton administration would never have been solved to the satisfaction alike of the white settlers and the native population. The Germans have transformed the dirty negro villages of Dar-es-Salaam and Tanga into substantial and imposing towns, they have opened up trade routes and established markets in every direction, and they have experimented in almost every branch of plantation and native cultivation. They have made the colony the most important German possession from the point of view of fibre cultivation, and obtained excellent results in the raising of coffee, copra, tobacco, spices, and cereals. In 1912, they had 35,000 acres of rubber plantations, while everywhere the fruits of their industry and enterprise were only beginning to be gathered. In the building of towns, railways, roads, barracks, post, and telegraph stations, the Germans have done admirable work, and have furnished the colony in a thoroughly substantial and typically Teutonic manner. But the labour difficulty was outside the scope of their capacity; the method "peculiar to the German spirit" with which they handled social problems was

powerless to placate or elevate the native mind ; the machinery by which *Kultur* is inculcated broke down under the weight of aboriginal prejudice, suspicion and hatred. At the beginning of the war the solution of the problem seemed as remote as ever, for if the authorities did not attempt to settle it as they did in South-West Africa by "smashing tribal life," they approached it without intuition, sympathy or imagination. Hans Zache may be sincere in his belief that work is provided by the German employers "for the blessing of the negro," but they certainly lack the art that is required to convince the negro of its blessedness or to induce him to receive the provision made for him with becoming thankfulness. Yet if the authorities failed and failed completely, it was not because they hesitated in the application of first-rate German systems to fifth-rate negro races. They tried a method of recruiting native labour through the agency of trained native recruiters ; they appointed Government officials to superintend the relations between employers and employees ; they introduced all sorts of alluring regulations concerning wages, work and length of contracts ; and they established labour markets. But it was doubtful, according to the latest Consular Report, whether any final solution of the numerous difficulties was possible in the near future, and the Administration in 1914 was considering the adoption of the system in force in Togoland, of imposing a head tax upon the natives and compelling them to pay in forced labour. The

German colonisers will be relieved, as the result of the campaign which the British forces are now carrying into their territory, of a large measure of trouble with which they are not constituted to successfully deal, while the native population will be spared the infliction of a protracted course of *Kultur* which they are equally unconstituted to appreciate.

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GÈRMAN EAST AFRICA

EARLY HISTORY.

THE year 1884 marked the commencement of German colonisation under the ægis of the State. In the previous fourteen years, which represented the first period of Germany's privately conducted experiments in economic expansion, the State had refused sympathy and support to any scheme of Colonial Imperialism. Bismarck had negatived suggestions for the annexation of French Indo-China and Pondichéry, he had declined to subsidise Luderitz's company at Angra Pequena (Luderitzbucht), and had withheld support from the companies established on the coast of East Africa. It was not until 1884—the year of the Berlin Conference—that the Government revealed its change of policy by reconnoitring the Gulf of Guinea and securing the provinces of Togo and the Cameroons. In the same year Bismarck and Prince Hohenlohe-Langenburg, the President of the academic German Colonial Society, refused to be beguiled by the proposals of Dr. Carl Peters, who had studied in England the history of British colonial activities, and was fired with the idea of founding "adventurers'

companies" for the creation of German overseas possessions. Dr. Peters, undeterred by the attitude of the Imperial Chancellor, established the Society for German Colonisation, raised a capital of £8,750 from sympathetic "adventurers," and sailed for Zanzibar, where he landed on November 4th, 1884.

On this expedition Dr. Peters made twelve treaties, by which he acquired the well-watered, fertile, mountainous province which is comprised by the countries of Useguha, Nguru, Usagara, and Ukami, and forms a tract of territory as large as Southern Germany. Although Bismarck had pursued Dr. Peters to Africa with an official communication to the effect that the State would not grant him protection for his own life or for properties he might acquire opposite Zanzibar, the Government thought better of their decision, and on his return to Berlin he received, on February 27th, 1885, an Imperial Charter, signed by the Emperor and the Imperial Chancellor. The intrepid adventurer founded the German East Africa Company, and undertook to create a German colonial empire by extending his treaty possessions in the west to the three great lakes of Central Africa, including Uganda and the Upper Nile, and, in the north, over the countries of the Somali as far as the British Colony of Berbera, including Mount Kilimanjaro and Mount Kenia. But the coastal regions and harbours of the original concessions, which were not included in the company's jurisdiction, were administered by Arab officials appointed by the Sultan of Zanzibar, and it

was obvious that so long as the harbours and the Customs dues were in the control of the Arabs, the development of the newly-acquired German hinterland would be rendered impossible.

THE GERMAN EAST AFRICA COMPANY.

Under the powers vested in him as Chairman and General Manager of the German East Africa Company, Dr. Peters opened up negotiations with the Sultan of Zanzibar for the concession of the ports of Dar-es-Salaam and Pangani. Agencies of the Company had been opened in both these ports, and it was hoped that by obtaining the desired concession it would be possible for the Company to traffic direct with the natives of the interior across the strip of land; ten miles wide, which was controlled by the Sultan. During the negotiations it suddenly occurred to Dr. Peters to obtain for the Company the lease of the whole coastline as far as it stood in relation to the German sphere of influence, and on July 30th, 1887, he succeeded in concluding a provisional agreement on the above lines with the Sultan. Certain clauses of this provisional agreement were, however, unsatisfactory, and on Dr. Peters' return to Germany negotiations continued at Zanzibar, the German demands being put forward by Dr. Michahelles, then German Consul-General at Zanzibar, acting upon Prince Bismarck's instructions. On April 22nd, 1888, an agreement was signed.

The fifteenth article of the agreement is as

follows : The Sultan cedes to the German East Africa Company, for a period of fifty years, the administration of his dominions along the coast to the south of the Uмба River, said administration to include policing, the exercise of justice, &c. ; nevertheless, the administration is to continue in the name of the Sultan and under the banner of Zanzibar. The Company acquires the absolute ownership of all unclaimed land, forests, and mines. The Company acquires, moreover, the right to tax the natives. A special article (Article 8) grants the Company the right to create a bank, with the exclusive privilege of issuing notes. From a financial point of view the most important concession obtained by the Company was the administration of the Customs. It was agreed that during the first year the Company would administer the Customs for the Sultan against payment of a 5 per cent. commission, the cost of the administration, up to a sum of 250,000 marks, to be borne by the Sultan. After the first year the Customs were to be leased to the Company for a sum determined by the working results of that year, subject to alterations at the end of every three years. The value of this concession in the eyes of the Company, as Dr. Zintraff explains in an article in the *Deutsch-Ostafrikanische Zeitung*, is proven by the circumstance that it was their intention to combine into one organisation all their officials, who would at the same time be the Customs officials. As regards the date for the taking over of the administration, it was left

to the Company to fix any day after August 15th, 1888. In the meantime, Herr Vohsen, a retired Consul, arrived in East Africa as representative of the Company, with full powers to act, and he fixed August 16th to 18th, 1888, as the date for the assumption of authority. Happily, this coincided with the Moslem New Year, and was therefore highly approved of by the Sultan of Zanzibar. It was, moreover, agreed between the Sultan and the Company that the transfer should be ceremoniously proclaimed by unfurling, side by side, the flags of the Company and of Zanzibar. An irade, addressed by the Sultan to the Vali of Kilwa in August, 1888, may be reproduced here :—

TO THE VALI OF KILWA :

I hereby order you to hand over to the Deutsch-Ostafrikanische Gesellschaft the house in which you now reside. Give them also your flag; they will unfurl it, as it best suits them, together with their own flag, on the house which they will select. But both flags must fly side by side. Moreover, if you do not wish to be employed by the Company, return immediately to Zanzibar, and bring with you all weapons and ammunition that belong to us.

Greetings.

SEYD CALIPHA BIN SAID.

GOVERNMENT ASSUME CONTROL.

The preparations for taking over the civil and

Customs administration appeared to present no difficulties, and in June, 1888, the representatives of the Company and the Sultan proceeded to the coast and assured themselves that the impending changes would be received without opposition. The civil administration was taken over on August 16th, the Customs two days later. But no sooner had the blood-red banner of Zanzibar been unfurled side by side with the Company's flag, than the Valis of several towns, who had virtually been the masters of the coastal region, were found to be in a state of revolt. The ceremony was successfully carried out in Dar-es-Salaam, Lindi and Mikindani, but in Pangani the inauguration of the new administration had to be effected under the guns of the *Moeve*. A landing party superintended the unfurling operation at Tanga, and Bagamoyo was in a state of insurrection. Several representatives of the Company were murdered, and others saved their lives by flight; only Dar-es-Salaam and Bagamoyo, protected by the warships, were enabled to continue as stations of the Company. Terrible months followed that memorable August 16th, 1888, and it became increasingly plain that the Company was not capable of controlling the situation. Bismarck, intriguing for an excuse to establish Imperial authority, introduced a law against the slave traffic which was still flourishing in East Africa, and the Government voted £100,000 to give effect to the measure. Major von Wissman, the celebrated African explorer, was

placed at the head of an expedition composed of Zulus and Soudanese. It was despatched, ostensibly, to suppress slavery, and under his energetic leadership the revolt was quelled in the course of a few months. The lost places were retaken with the help of the Marines, and in 1891 order was restored in the Company's territories. On April 1st of that year the Government assumed formal control in German East Africa. Roads were built, railways were commenced, and a certain amount of progress was made. But the development of the Colony on a broad and systematic scale was retarded by the difficulty that was experienced in getting the Government to vote the necessary monies, and events occurred in the colony which served to hamper the efforts of the local administrators. Native discontent culminated in open revolt. The Zelenski expedition was practically wiped out on August 17th, 1891, the populace was nearly decimated by famine in the same year, and the early experiments in the cultivation of plantations were largely attended by failure. It was not until after the dissolution of the Imperial Parliament in 1906 that the work of the colonisation of East Africa received sustained encouragement from the State. In Freihers V. Vechenberg, an energetic and determined personality was found at the head of affairs, and with the appointment of Dernburg as State Secretary, the German colonial policy received a fresh impetus which was immediately productive of concrete results.

THE MILITARY FORCES.

Writing in 1891 upon the subject of the wonderful resources and agricultural capacities of the hinterland of "German" East Africa, a correspondent of "South Africa" found much to commend in the methods employed by the colonisers. "It is scarcely two years," he wrote, "since the Germans entered into actual management of their East African territories, and the strides they have made towards the development of their possessions must reap abundant harvests at an early date. They certainly have a rich and fertile country under their flag, with excellent ports, and a fairly healthy seaboard. Their system of colonisation, too, is excellent; it is indeed a system, and even after two years the results are fruitful and exceedingly encouraging. From the Rovuma, where the most northerly Portuguese influence terminates, the country geologically alters and presents a more healthy appearance, and one fitted for the reception of European immigrants. From the coast the land gradually rises in tiers, or steppes, until it reaches a height of from 3,500 to 5,000 ft. above sea level. On the coast line, tropical verdure is profuse; the soil, a dark loam, changing in places to a light sandy loam, rich and fruitful, generously repays the tiller. Cotton, coffee, indigo, rice, vanilla, and spices have all been planted with marked success, but time has not permitted any extensive experiments being made in the cultivation of all the riches of the tropics."

Although substantially correct in his estimation of the natural wealth of the territory, the writer overstated the success which attended the German experiments at that time, while the native attitude was far from satisfactory. The dissatisfaction and unrest among the Arabs proved a formidable obstacle in the way of the exploitation of the territory, and it was recognised that as "a white force would be nothing more than a walking hospital"—to quote from an article by Captain A. Fonk in the *Kolonial Kalendar*—a reliable colonial force must be recruited from natives accustomed to the climate. Commissioner Wissman drew his troops from Egypt, where large numbers of Soudanese soldiers, who had been dismissed from the Egyptian Army, were persuaded to enlist by the prospects of "fresh adventures, booty and high pay." But this method of recruiting was interrupted by what Dr. Becker describes as the unfriendly interference of the English Government, and the German colonial authorities had to search elsewhere for their raw military material. This explains the mixed nationalities of the colonial force, which is composed of Soudanese, Abyssinians, Somalis, Zulus, and cannibal natives of the Congo, commanded by white officers trained in the Oriental College at Berlin. "When a transport arrives from Suez with recruits (with bands playing 'Deutschland uber Alles')," writes Captain Fonk, "they are clothed and armed with a model 71 rifle, &c. Most are married. Each receives separate quarters in the barracks, which are

built of stone and have corrugated iron roofs. . . . Endless patience is required to turn this class of recruit into a capable *askari*, and in this task the white officers are assisted by native subordinates. The word of command is given in German; the orders in the native languages." The difficulty of giving orders in the native languages of the soldiers of half-a-dozen nationalities rendered the labour of training such troops both long and arduous, but Dr. Becker states that without this colonial force there could be no European plantations in the colony. They were supposed to be a civilising influence among the natives, who had been taught the art of road-making, &c., and who felt secure from robbery and murder under armed protection. Dr. Becker advocated the formation of a troop of reservists, from discharged natives, who would rejoin in case of need, and a large increase in the total strength of colonial troops and police. "Those who understand German East African conditions," he added, "consider that further strife between black and white in South Africa is more than probable, and that we can only emerge from the contest victorious if we are well prepared."

The military forces of German East Africa are described by the British Vice-Consul in a report published in July, 1913, and the information he gives is corroborated by Captain Bock von Wulfingen in an article on "The Military Position in German East Africa," in *Jahrbuch über die Deutschen Kolonien*

(1914). From these sources it appears that the force consisted, at that time, of fourteen companies of native troops, under the command of white officers. The companies, which were each composed of 162 men, were distributed at twenty-three posts on the coast and in the interior. At Dar-es-Salaam, in addition to the 10th company stationed there, there was a recruiting depot with 154 native soldiers, a signalling company of thirty and a band of twenty men respectively. The total strength of the troops was thus 2,472 native soldiers. Three machine-guns and from thirty to forty bearers were attached to each company. The total number of white officers of all ranks was 261, of which three commissioned officers were attached to the police forces, and so were employed in civil administration. The pay of the native soldiers was from twenty to thirty rupees per month for privates, and up to 150 rupees for native non-commissioned officers. The heliographic communications extended over 888 miles. Attempts to establish a pigeon-post had not met with much success. Twelve aluminium boats were in use to facilitate transport, and experiments with collapsible boats were being persevered with.

The British Vice-Consul reported that the short side-arms and the German military rifle M. 71, with which the troops were armed, were to be replaced with the lengthened carbine 98. Captain von Wulfingen regarded this re-arming of the troops as of special importance as greatly increasing their fighting

value. He stated that three companies have already (1914) received these carbines, or would have them shortly, while the remainder were to be re-armed during the ensuing few years. In the same article we read: "An important alteration in the disposition of the troops in German East Africa is rendered necessary by the extension of the Tanganyika Railway and for the protection of the valuable area it has opened up. It remains to be seen whether the existing force will be sufficiently strong to protect this line in war time. It would have to guard some 1,300 km. of railway line and a large number of railway stations, water stations, bridges, &c. In order to render fewer troops necessary for this purpose, it would be advisable to build defence works at the most vulnerable points."

Captain Macqueen, in the course of a lecture delivered at Bulawayo, referring to the German fighting force in East Africa, said that the Somalis, in particular, were a fine people and a great pioneering race, and that it was from these half-dozen fighting races that the Germans had organised their army, the nature and discipline of which was something to marvel at. Before the war one did not understand the reason for all this organisation, but it was pretty obvious now. The Germans were far-seeing, and were looking ahead to the present crisis. There was plenty of ammunition in the country, and the rifles used were of the latest Mauser pattern. The army was probably not under 30,000 strong, but the

number could easily be expanded to 200,000 or 300,000 from the fighting races of the country; and if it was found that there was equipment for such an army, Captain Macqueen for one would not be astonished. In addition to all this, there were 40,000 German soldiers, and there was artillery at every military post and strategical point. The native had attained a high standard of proficiency, thanks to some six hours a day training. And these natives, who were led by Germans, were able to use the German field gun and also the heliograph—in fact, anything that the white man could do.

DR. PETERS' SUMMARY.

With the establishment of the Company's administration over the whole coast, from the mouth of the Umba River to the Cape Delgado, Dr. Peters regarded his work as completed. The modification of the agreement in 1890 by the treaty by which Great Britain obtained protectorate over the Sultanate of Zanzibar and the coast, the hinterland, including Mount Kenia and Uganda and the Southern Sudan, in exchange for recognition of Germany's rights to the remainder of German East Africa and the cession of Heligoland, was a terrible disappointment to Dr. Peters, who did not foresee the present European conflict or the value of Heligoland as a German naval station. But the treaty of 1890 left Germany with an East African possession which had an area of about 364,000 square miles, and a population of between

7,000,000 and 8,000,000 people. "The country," writes Dr. Peters in a special article contributed to *The African World* in November, 1913, "is fairly well watered by rivers, such as Pangani, Wami, Kingani, Rufiji, Rovuma. Its greatest value is the fact that it borders in the west on the three great lakes—Lakes Victoria, Tanganyika and Nyasa. This gives it, so to say, a second interior coast line. Its climate, of course, is tropical throughout, but as it is rising from the sea upwards in terraces to high plateaux of 6,000 ft. and more, it has different zones, some of which are quite fit for European immigration as soon as proper railway communications are established between these parts and the coast. Of such available lands we have about 48,000 English square miles.

"As a whole, the colony may be described as a good agricultural country, and it has already been found fit for all sorts of tropical plantations. It will soon compete keenly with large tracts of British East India and Ceylon for indiarubber, fibre plants, cotton, tobacco, coffee, tea, sugar, rice, and other products. Our best plantation districts, as far as we know at this time, are situated in the north of the colony—Usambara, Kilimanjaro, and the countries to the west of it. But there is not the slightest doubt that round our great equatorial lakes equally good territories will be opened up."

In conclusion, Dr. Peters declares of the colony which he was instrumental in founding: "Take it

all in all, German East Africa is perhaps not a colony of the first class. It is not a British India, nor may it be compared with the rich islands of the Malay Archipelago, or the West Indies. But it offers splendid openings in several directions, and if properly managed it may be developed into a wide and very important field for German enterprise, and take its great share in the commerce and prosperity of the world."

Dr. Peters was recalled in 1895, and was rewarded for the conception and creation of German East Africa by an official persecution of intrigues, libels and national ingratitude which was almost incredible in its malevolence. He died before seeing the territory he had commandeered for his country—"one of the most priceless of the colonial pearls in the Imperial crown"—wrested from the grasp of the first and last ruler of a German colonial empire.

COMMERCIAL AND INDUSTRIAL PROGRESS.

A general idea of the progress that the German administrators and traders have effected in this quarter of the world, and the present economic value of the colony, may be gathered from the following figures, which have been summarised from the latest British Consular Report.

The total trade of the country for the year 1902 amounted to £707,088, consisting of imports to the value of £442,923 and exports £264,165. In the year 1913 the total had grown to no less than

£4,445,477, of which the imports amounted to £2,667,925 and the exports to £1,777,552.

The total values of the imports and exports for the last thirteen years, ending 1912, are given below:—

Year.	Imports.		Exports.		Total.
		£		£	£
1900	..	601,527	214,682		816,209
1901	..	475,538	231,174		706,712
1902	..	442,923	264,165		707,088
1903	..	559,403	352,710		912,113
1904	..	716,945	447,528		1,164,473
1905	..	882,767	497,483		1,380,250
1906	..	1,257,642	549,736		1,807,378
1907	..	1,190,318	625,009		1,815,327
1908	..	1,289,338	543,692		1,833,030
1909	..	1,697,085	655,974		2,353,059
1910	..	1,932,938	1,040,269		2,973,207
1911	..	2,294,582	1,121,888		3,416,470
1912	..	2,515,000	1,570,000		4,085,000
1913	..	2,667,925	1,777,552		4,445,477

The steady expansion of trade is attributed to the increasing economic importance of the Protectorate, and not merely to an augmented value in the importation of materials. According to the British Consular Report for the years 1912-13, the value of the total imports amounted to £2,515,455 in the year 1912, and shows an increase of 9·6 per cent. over those of the previous year. The imports *via* the coast ports amounted to £2,234,585 and show an increase of 10·7 per cent., while those *via* the overland routes (chiefly *via* the Uganda Railway and Victoria Nyanza) amounted to £280,870, and show an increase of 1·5 per cent.

In order to form a more correct idea of the economic value of the foregoing figures, it is necessary to subtract from them the value of the imports of specie and of material imported for railroad construction. They were as follows: Specie, £27,460 in 1912 as compared with £105,440 in 1911 (this decrease of nearly 74 per cent. must be regarded as a chance occurrence, as the number of small coins in circulation is continually increasing). Railway building material, consisting of raw iron and iron rails (£267,000), unclassified iron (£136,450) and rolling-stock (£113,750), accounted for imports to the value of £517,200. By subtracting the total value of the imports of specie and railway material, the result obtained shows the actual trade value of the imports, viz., £1,970,800 in 1912 as compared with £1,738,100 in 1911, an increase of £232,700. As a matter of fact, the actual trade value of the imports is somewhat higher, as some imports were included under the heading of "Railroad construction material," which were not actually intended for that purpose.

The imports *via* the Uganda Railway and the ports on Lake Victoria Nyanza rose in value from £253,496 in 1911 to £263,446 in 1912. Their value in 1910 was £256,607, compared with which the figures for 1911 show a slight decrease.

The value of the trade (imports and exports) *via* Lake Tanganyika fell from £5,824 to £2,449. This decline is, however, only apparent, and is due to

the fact that goods in transit are now excluded from the imports and exports.

The general increase in the total imports was extended over all classes of goods, those intended for European and native consumption and those connected with the economic development of the country. It is worthy of mention that the value of the textiles imported mostly for native wear formed almost half the value of the total imports, exclusive of specie and railway construction material.

The total value of the exports in 1912 was £1,570,915, of which £1,253,985 went *via* the coast ports and £316,930 fell to the share of the lake ports. These figures show an increase of £449,030, i.e., 40 per cent., over those for 1911, the coast trade increasing by 46·4 per cent. and the overland trade by 19·2 per cent. There was no export of specie in 1912. It is interesting to compare the value of the exports of native products with those from European plantations. In 1912 the value of the exports solely from European plantations (rubber and sisal) was £729,650, of those which came partly from European and partly from native cultivation (coffee, cotton, copra) it was £278,800, and of those consisting almost wholly of native produce (tobacco, rice, ground-nuts, simsim, sugar, thick molasses) it was £102,000. The exports from cattle rearing (hides, skins and samli), amounting to £216,250, were mostly of native production, as were also wild rubber, wax and copal, valued at £107,000.

The amount of the goods carried in transit was

287 tons, with a value of £57,000. These goods practically all came from or went to the Belgian Congo. The imports into the Congo, consisting of cotton goods, provisions, beads, copper, iron, and brass wire, and hardware, amounted to 129 tons, valued at £13,632. Of these, 20 tons were imported *via* Dar-es-Salaam and Ujiji, and 109 tons *via* the Uganda Railway and Muanza or Bukoba, whence they found their way to the Congo *via* Kissenji, Ujiji, and Bismarckburg. The exports from the Congo amounted to 158 tons, with a value of £43,149, of which about 12 tons were sent *via* Kissenji and Ujiji to Bukoba or Muanza and thence by the Uganda Railway, 134 tons went from Bismarckburg and Ujiji *via* Dar-es-Salaam, and 12 tons coming from Ujiji found an outlet *via* Bagamoyo. These exports consisted chiefly of rubber and ivory. It is hoped that the trade will increase considerably on the arrival of the Central Railway at Kigoma on Tanganyika.

The value, in round figures, of the total trade with Germany in 1912 increased from £1,870,000 to £2,180,000, i.e., by 16 per cent. Exclusive of specie, it amounted to £1,285,000, an increase of 14.4 per cent. over the corresponding figures for 1911. The exports to Germany amounted to £890,000 against £660,000 in 1911, an increase of 35 per cent. Unfortunately, however, these figures give no correct idea of the actual value of the trade, as many of the goods entered at the Customs as arriving from Germany are not of German origin, but merely transhipped at Hamburg, e.g., the imports of cotton goods from

Germany were given as £175,344 in 1912, but it is probable that little, if any, of these goods were of German manufacture. The official trade report for 1911 stated that Germany's textile trade had not yet succeeded in obtaining any share in the export trade of cotton goods for native wearing apparel. It is hoped to remedy this defect in the statistical returns in the future, by obtaining more exact particulars as to countries of origin when the imports are entered at the Customs.

On the other hand, it must be borne in mind that many of the imports *via* Mombasa and the lake ports and from India and *via* Zanzibar are of German origin, while many of the exports under the headings "Rest of Africa" and "Zanzibar" found their way on to the German market.

The value of the trade with Zanzibar, which is mostly entrepot, declined from £331,000 in 1911 to £271,000 (round figures) in 1912. This decrease of 18 per cent. is to be ascribed to the effect of the quarantine regulations which were enforced against Zanzibar on account of the cholera outbreak in that island. The value of the imports from Zanzibar shows a decline in almost all articles except cotton goods, which increased by £10,000. This is explained by the fact that large quantities of cotton goods were returned to Dar-es-Salaam merchants by Indian buyers incapable of payment. The value of the exports to Zanzibar fell from £104,000 to £82,500 in 1912. Copra declined by £22,500, chiefly owing to quarantine regulations. The principal articles of

export are copra, simsim, ivory, sorghum, copal, coffee, maize, and bags (for packing cloves).

The value of the direct trade with India rose from £360,000 to £440,000. Only the imports are of consequence, as the total exports amounted to only £440. The chief articles of import in 1912 were cotton goods (£155,000) and rice (£139,389). Exact figures are not available as to how much of the cotton goods imported from India is of Indian manufacture. The imports of rice increased by £10,000 in value, but declined by 2,000 tons in weight, and if the decrease in the amount of Indian rice imported *via* Zanzibar be taken into account the weight of the imports fell by 4,208 tons. Other Indian imports were:—

	£
Flour	25,000
Samli	10,000
Teakwood	5,000
Spices	4,300

The remaining articles imported from India—sugar, glass, hard ware, umbrellas, and silk—belong chiefly to the entrepot trade.

The figures under descriptive of the trade with the rest of Africa are concerned almost entirely with the trade *via* the Uganda Railway and Mombasa as the figures for the trade with the Congo, which consists of goods in transit, are omitted. The imports were about £220,000 and the exports about £300,000. The latter find their way principally to America (hides and skins), Germany (coffee, cotton, ground-nuts, and simsim), and France (ground-nuts and skins). The

imports come from Germany, the United Kingdom, the Netherlands, America, and Italy.

The trade with countries other than Germany, India, Africa, and Zanzibar rose from £400,000 in 1911 to £670,000 in 1912 (imports, £376,500; exports, £294,000).

The value of the direct trade with the United Kingdom was £290,000 (imports, £125,000; and exports, £165,000). The values of the principal articles are given below:—

Imports from the United Kingdom (Direct) during the

	<i>Year 1912.</i>	£
Cotton Yarns and Manufacture	71,112
Corrugated Iron	14,683
Spirits	6,150
Tobacco, Manufactured	4,029
Hardware	2,828
Chemicals and Drugs	2,308
Boots and Shoes	2,293
Flour and Provisions	1,373
Soap	1,356
Milk, Butter, and Cheese	1,227
Various Metal Goods	1,200
Glass and Glassware	1,130

Exports to the United Kingdom (Direct) during the

	<i>Year 1912.</i>	£
Rubber	144,950
Coffee	7,387
Hides and Skins	6,563
Ivory	5,432
Copal	1,334
Raw Cotton	647
Wax	278

Practically the whole of the exports of sisal (17,079 tons) were taken by Germany (16,224 tons) and America (595 tons). In 1911 sisal was exported to the value of £4,649 to the United Kingdom.

Of the "other countries" may be mentioned the Netherlands, from which were imported cotton goods, tobacco, and iron goods (of British and German origin); Norway, from which came timber; France, from which came wine and olive oil; Italy, from which were imported wine, cotton goods, and umbrellas; Russia and America, from which petroleum was imported.

Japanese ready-made shirts were imported in 1912 for the first time direct from Kobe and found a good sale. Japanese beads imported *via* India have also met with a good reception. A large number of patterns of cotton cloths (shawls, *bhurra* and *subaya*) were sent to German East Africa by a Japanese firm, and it is not impossible that they will compete with those already in the market. The connection with Japan is favourable, as there is a direct service between Kobe and Aden maintained by the Austrian Lloyd steamers.

The principal ports on the coast are the capital, Dar-es-Salaam and Tanga.

The value of the trade of Dar-es-Salaam was £1,615,000 in 1912, against £1,360,000 in the previous year. Imports amounted to £1,345,000 and exports to £265,000. The exports increased by no less than 45·2 per cent., but it must be borne in mind that the

figures include the trade of the Island of Mafia and the Rufiji district (Customs Salale).

The business of discharging cargo was carried out by Messrs. Hansing & Co. at the rate of 5 marks per ton. For loading cargo there was no fixed rate, and it was carried out partly by individual firms owning lighters. A wharfage fee was fixed on January 1st, 1913, of 40 hellers per ton or cubic metre. From April 1st, 1914, the collection of this fee will be undertaken by Messrs. Hansing & Co., and in cases where the services of this firm are not employed in loading or discharging cargo a higher rate will be charged. Messrs. Hansing will thus apparently be given a practical monopoly of the lighterage at the port.

There are electric cranes at Dar-es-Salaam for transferring cargo direct from lighter to Customs House; and in view of the expected increase in traffic from the completion of the Tanganyika Railway, considerable extensions of the Customs sheds and the wharfage front are planned for 1914.

The figures given above do not include the goods in transit to and from the Congo (£50,000 approximately) nor the entrepot trade goods (£75,000).

The trade of the port of Tanga showed a very satisfactory increase in 1912, the exports exceeding the imports for the first time. The imports were valued at £600,000, against £560,000 in 1911, and the exports amounted to £666,341, against £427,489. The fact that the exports from Tanga are more than double those of the next most important port, Dar-es-

Salaam, is due to the existence of the majority of European plantations in the hinterland of the former town. The discharging of cargo was carried out by the agents of the Deutsch Ost-Afrikanische Linie at the rate of 7 marks per ton.

The trade of the other ports on the coast was as follows :—

						£
Lindi .. .. .	..	..	..	..	..	195,000
Mikindani .. .. .	..	..	..	..	..	80,000
Pangani .. .. .	..	..	..	..	..	110,000
Bagamoyo .. .. .	..	..	..	..	..	55,000

The trade of Lindi, Mikindani, and Pangani showed a satisfactory increase. Bagamoyo has steadily declined in recent years, as the caravan traffic has now been entirely replaced by the Central Railway. The trade of Sadani and Kilwa is not important. There are also ports at Salale on the Rufiji River, whence mangrove wood and cotton are exported, and at Kilindoni, on the Island of Mafia, which exports copra. There are three European plantations on the island.

The trade of the ports on Lake Victoria Nyanza showed good development. Complaints were heard in 1912 that neither the steamers on the lake nor the Uganda Railway were able to cope with the volume of the traffic.

The imports *via* Muanza showed a decline from £152,000 in 1911 to £121,500 in 1912. The export trade, on the other hand, rose from £140,500 to £147,000. The decline in the imports does not

indicate any decline in the importance of Muanza or its immediate hinterland. It is accounted for by the fact that in 1911 the importation of goods for the Tabora district by way of Muanza was finally abandoned in favour of the route Dar-es-Salaam and the Central Railway. This trade amounted to about £115,000, so that the above figures indicate a marked growth in the trade of the Muanza district. The exports, which rose in value by £6,200, consisted of the following :—

Raw Cotton	..	..	..	Tons	364
Native Production	..	..	..	..	225
Cotton Seed	..	..	..	..	424
Sisal	..	..	..	..	22
Gold	..	..	..	£	16,750
Ground-nuts	..	..	..	Tons	3,340
Simsim	..	..	..	..	108
Samli	..	..	..	..	242
Ox-hides	..	..	..	..	563
Goat and Sheep Skins	..	..	..	..	275

Of this trade, £140,000 fell to the share of European firms, £105,000 to Indian firms, and £20,000 to missions, private persons, and natives.

The exports from Shirati increased from £16,100 in 1911 to £25,250 in 1912. Imports amounted to £11,950 and the total trade to £37,000. The trade is not influenced by the Central Railway. Exports consisted of ground-nuts, hides and skins, simsim, samli, and cotton.

The trade of Bukoba rose in value from £193,000 in 1911 to £271,000 in 1912. Imports amounted to £129,500 and exports to £141,000. This considerable

increase is to be attributed to the increased activity of the natives and to the opening up of Ruanda and Urundi, which countries, with their dense population and vast herds of cattle, promise rich developments of trade in the future. Practically the entire trade of these districts is carried on by way of Bukoba at present. The drawbacks of the caravan trade give rise to numerous complaints and often serious losses. Loads often take months to reach their destination, and sometimes are lost *en route*. The proposed railway will afford the required relief and will probably affect the trade of Bukoba to some extent, as a certain amount of the Urundi and Ruanda trade will travel *via* the Usumbura-Kigoma-Dar-es-Salaam route. The principal imports *via* Bukoba were cotton goods, and the chief exports hides and skins, coffee, ground-nuts, rubber, wax, and ivory.

The trade with the Congo is carried on by way of Ujiji, Kissendji, Usumbura, and Bismarckburg. It is limited to the transit of local products, cotton goods, and provisions. With the arrival of the Central Railway at Kigoma on Tanganyika that port was to have become the entrepot station for the trade of the Eastern Congo, North-East Rhodesia, and the German coast lands on Tanganyika. The harbour and Custom-house were in process of construction when war was declared, and it was hoped to have had one large steamer ready about the end of 1914, while the building of another was contemplated.

The trade of the Lake Nyasa district is still quite

unimportant, and will probably remain so until the country is connected with some main artery of traffic by a branch railway line. Both the existing routes are unfavourable to commerce. For the route Kilossa to Langenburg there are no available bearers, and the route through British Nyasaland is not reliable and requires too much time, as the River Shire can only be made use of during the rainy season. Bearers are also difficult to obtain in Blantyre.

The trade of the Kilimanjaro district passes almost entirely *via* Tanga. The traffic *via* Taveta (Voi) and Mombasa has now practically ceased, as the planters near the British border, who would be glad to send their products by the very much cheaper Uganda Railway, are under the necessity of first sending the goods to the Custom-house at New Moschi, there being no Customs office on the border of the two Protectorates. The expense of this procedure counterbalances the saving that would be effected by using the British line, and the traffic is thus forced into the Moschi-Tanga route.

THE GERMAN MENACE TO BELGIUM.

On 4th April, 1913, soon after the news had been received in Berlin that the central line had reached Lake Tanganyika, the *Kolonialzeitung* contained the following article: "French papers write with a sense of soreness to warn Belgians of the German menace in Central Africa. The *Annales Coloniales* in the last few weeks have twice referred to the matter under the title German bluff, the second notice being in the

issue for March 28th, in an article by Senator Cornet. They try to make out that Germany has no right to set her heart upon using the Tanganyika hinterland as a sphere of activity—*wirkungsbereich*—for her central railway. All the same they are at considerable pains to demonstrate the disadvantages and deficiencies of our Tanganyika Railway. That we are directing our gaze to the other side of Tanganyika goes, of course, without saying, not least because the Belgian Colony stands open, by international agreement, to free trade. We might also call the attention of the French to the fact that they themselves, in the railways they plan as well as in the railways they construct, by no means leave out of account the nature and value of neighbouring countries belonging to other nationalities. That has happened quite lately, to give only one instance, in their very similar proposal to create a railway from Great Popo northwards to Monu. This line, by the by, will certainly send out its feeders far beyond Monu into our Togo Province, and is likely to cause complications in the near future owing to the acceptance of the great West African loan. As to our menace of Belgium in Central Africa, remarkably enough those who are menaced know absolutely nothing about the menace. In proof whereof we adduce an authority everyone must admit is as unimpeachable as he is well informed. We refer to the Belgian Colonial Minister. This is what he said to the Belgian Chamber on March 11th: 'The arrival of the German railway at the Tanganyika Lake is an event to congratulate

ourselves upon. It really seems as if many people considered the event as making for the interests of the Belgian Congo, seeing that no neighbouring colony is open (for our exports); nor does any other railway exist, nor indeed is any other railway making its way to our province. How could such considerations have been seriously entertained, unless some advantage was clearly foreseen from a study of those things which a nation requires. The arrival of the German railway at Kigoma is as natural an event as the existence of the German Imperial railway at Herbestal. Our lines and the German lines will be united, and the result will be a decided impetus to progress in Africa.'

So we expect that our Tanganyika Railway will be used by the Belgians, either for goods traffic or for passenger and mail traffic only. That will be in the final issue a question of saving time and money; and on these grounds is no concern of the French whatsoever."

THE USAMBARA DISTRICT.

A traveller who has contributed to the *Times* some interesting information respecting the Usambara territory, describes it as possessing scores of thriving plantations, pleasant and well-built towns, excellent roads, and a biological station reputed to be the best equipped in Africa. Its European population is about 3,000. Bordered east and west by arid scrub-covered steppes, north by open country, and south by dense jungle, the Highlands form an oasis in the wilderness. Extending south-east and north-

west for 75 miles, they vary in breadth from 12 to 45 miles. The hills rise abruptly 1,500 ft. to 1,700 ft. from the surrounding plain, and the most lofty peaks are over 7,500 ft. above the sea. The valleys, deep and narrow, through which rush picturesque torrents, and the hillsides are under cultivation; the native population is dense, and long before the coming of the white man they had flourishing and extensive *shambas*. Soon after the proclamation of the German protectorate a site in one of the south-western valleys was chosen as a Government post. Named Wilhelmstal, in honour of the Kaiser, it has grown into a considerable town, with fine public and private buildings, and all the amenities of a European city. The development of Usambara has been due chiefly to private enterprise. As the railway crossed the 20-mile deep jungle-covered coast plain rubber and sisal plantations sprang up along its line, and when the Highlands were reached other plantations were laid out. Of these the most remunerative have proved to be coffee, banana, and tobacco plantations. European fruits and vegetables thrive. A valuable trade in timber, chiefly cedar, has also been developed in Northern Usambara. Usambara flourished from the first, and besides Wilhelmstal half-a-dozen other model little towns were founded—towns to which the German planter brought his wife, and in which he brought up his family.

A considerable amount of English capital—over £2,000,000—has been invested in the development of Usambara, and a few British were among the settlers,

though most of the British plantations were in the Moschi region, further north and nearer the frontier of British East Africa. Usambara is not only a beautiful, healthy, and fertile region, but a natural mountain stronghold, admirably adapted for defence, and at the outset of the campaign the Germans were thought likely to make their chief stand in its fastnesses.

BRITISH TRADE IN THE PROTECTORATE.

The openings for British trade in the Protectorate will be, of course, entirely changed by the results of the present war, but when hostilities were declared in August, 1914, no British trading firm was engaged in business in the territory, nor was a single British merchant resident in either of the chief towns—Dar-es-Salaam and Tanga. This lack of enterprise is the more remarkable in view of the fact that a number of German firms were trading in Zanzibar and British East Africa, and that the trade in articles for the native market in German territory is capable of enormous expansion. As a pre-war note, the following paragraph on the subject from the Consular Report, is of interest: "Any firm opening a branch here now would have to face most serious competition and to be satisfied at first with very small profits. Suitable premises are difficult to obtain, rents are high and clerical labour is expensive. Another difficulty lies in the fact that most of the Indians, through whom business would have to be conducted, are financially dependent on the existing firms.

In his review of the general situation, the British Vice-Consul refers to the great hopes entertained for the expansion of trade from the extension of railway communication, and adds: "The general progress is here, however, as elsewhere, not without its shadowy side. The planters, who often lack cohesion and the ability to work together for the general good, are apt to lay their misfortunes at the door of the Government in times of adversity. They complain that there are too many officials, that they are overburdened with troublesome regulations and that the Government does not supply them with the workpeople they require. The officials, on the other hand, find their districts too large, while the volume of work is continually increasing. The Government is willing to assist the planter to obtain his workpeople, but is well aware that the planter needs not only to be provided with hands, but often to be controlled in his bearing towards them. It is also alive to the fact that natives must be encouraged to work on their own farms (*shambas*) as well as for Europeans. The high tariffs on the railways are a source of constant and loud complaints from planters, merchants and farmers, and a sympathetic echo is heard in many official quarters. The hopes entertained in some quarters in Germany that this Protectorate would become an outlet for numerous small settlers have not been fulfilled. The labour question still bristles with difficulties, and the recent rubber crisis has caused much depression in planters' circles. Capital flows but slowly into the country."

PHYSICAL FEATURES OF THE PROTECTORATE.

THE territory, which has hitherto been known as German East Africa, is bounded on the east by the Indian Ocean, on the south by Portuguese East Africa, on the south-west by Nyasaland and Rhodesia, on the west by the Belgian Congo, and on the north and north-east by Uganda and the British East Africa Protectorate. The coast line extends from the mouth of the Uмба to a few miles south of the mouth of the Rovuma, a distance of about 620 miles. Of the three large islands which lie off the coast, Pemba and Zanzibar form the British Protectorate of Zanzibar, and Mafia, with an area of about 200 square miles, forms part of German East Africa.

The country as a whole is elevated, the interior plateau of Central Africa ending more or less abruptly near the coast, leaving a coastal plain which, in the north, varies in width from ten to thirty miles, but broadens out further south. The average altitude of the plateau is between 3,000 and 4,000 feet. The highest points in the Protectorate are in the north-east, where the extinct volcano, Kilimanjaro, rises to 19,321 feet, while a little to the west is Mount Meru (14,955 feet). Stretching south-eastwards from Kilimanjaro are the Pare and Usambara Mountains, the latter almost reaching the sea. To the south-west of the Usambara hills, and on the

eastern edge of the plateau, are the mountainous regions of Nguru, Useguha and Usagara. In the south-west of the Protectorate are the Livingstone Mountains, the highest peak of which is over 9,000 feet.

Portions of the great lakes of Central Africa are included in the Protectorate, viz., the southern portion of Victoria Nyanza, the eastern shores of Lake Kivu and Tanganyika, and the northern and north-eastern shores of Nyasa. Situated on a line running through the centre of the country from north-east to south-west are Lakes Natron, Nyarassa and Rukwa.

The country is well watered. The chief rivers draining the plateau and flowing into the Indian Ocean are the Rufiji and the Rovuma. The latter is about 500 miles long and has its source in the mountains east of Nyasa ; for the greater part of its length it forms the boundary between the Protectorate and Portuguese East Africa. The Rufiji is navigable by small steamers for about sixty miles from its mouth ; whilst one of its southern tributaries, the Ulanga, is navigable almost throughout its whole course. Other rivers entering the Indian Ocean are the Pangani, which has its source in a glacier on Kilimanjaro, and the Wami and Kingani, both of which have their origin in mountains on the fringe of the plateau ; none of these is navigable for more than a few miles from its mouth. Of the rivers which feed the great lakes, the more important

are the Mori and Kagera (Victoria Nyanza), Malagarasi (Tanganyika), Songwe and Ruhuhu (Nyasa), and the Saise and Rupa-Songwe (Rukwa). The Kagera, which is 400 miles long, forms the head-water of the Nile, and is navigable for seventy miles from its mouth.

The chief seaports, all of which have good harbours, are, going from north to south, Tanga, with a population of 6,000, Pangani (3,500), Bagamoyo (5,000), Dar-es-Salaam (24,000), Kilwa (5,000), and Lindi (4,000). The most important inland town is Tabora, which has a population of 37,000, and is situated at the junction of the main caravan routes from the coast to Tanganyika and from Victoria Nyanza to Nyasa. Other important inland towns are Korogwe, in the Usambara Mountains, and Morogoro, Kilosa, Mpapua, and Dodoma on the road from Dar-es-Salaam to Tanganyika. On the great lakes the chief towns or settlements are Shirati, Muansa and Bukoba on Victoria Nyanza; Ujiji, Usambara and Bismarckburg on Tanganyika; and Old Langenburg and Wiedhafen on Nyasa. The Protectorate, which for administrative purposes was divided into twenty-four districts, had on March 31st, 1913, a total white population of 5,336, of which 4,107 were of German nationality and ninety British. The white population of the two largest towns was: Dar-es-Salaam, 967 (703 males); and Tanga, 298 (252 males).

The distribution of the male population according

PHYSICAL FEATURES OF THE PROTECTORATE. 37

to occupation was as follows on January 1st, 1913 :—

		<i>Per Cent.</i>
Government Officials ..	551	15·6
Attached to Protectorate Troops	186	5·3
Priests and Missionaries ..	498	14·1
Planters and Farmers ..	882	24·9
Engineers, &c.	352	9·9
Mechanics and Workmen ..	355	10
Merchants and Traders ..	523	14·8
Not Classified	189	5·4
	3,536	100
Total		

The Indian community, which has increased by some 4,000 in the last six years, is regarded with extreme dislike by the majority of the white population, and, to judge by the attitude of the Indians themselves, is not invariably accorded a sympathetic treatment by the authorities. With the exception of Goanese and Parsees (of whom there are practically none in the Protectorate), Indians are placed on the same legal footing as the natives, but they cannot be sentenced to flogging or chain-gang labour. The British Consul contends that the " oft-repeated cry of the Indian danger cannot be taken very seriously, as the risk of a country nearly twice the size of Germany being swamped by about 9,000 Indians is small. As a matter of fact, the Indian is a useful if not an indispensable member of the community. He is a pioneer of trade, a clever clerk and a skilled mechanic. He carries on work which the native is incompetent to perform, and he can do so under conditions of life and with an amount of food and capital which would

be utterly impossible for a European. The general contempt with which he is treated is due partly to the belief that he is the channel through which large sums, which would possibly otherwise be spent in the Protectorate, flow to India, and partly to jealousy on the part of would-be European competitors."

The means of communication has been considerably improved of recent years, and the two railway systems—the Central and the Usambara—with a total track of 996 miles, are supplemented by good roads between the seaports and the trading stations in the interior. The foreign trade of the Protectorate has followed either the overland or the coast routes. Of the former the most important is *via* the Victoria Nyanza ports and the Uganda Railway. Another overland route is *via* Moschi and Taveta and the Uganda Railway, but this decreased in importance after the opening of the Usambara Railway. In the south there is an outlet *via* Shire River and by rail to Chinde, but the trade along this route has never assumed any considerable proportions,

The intentions of the German Government with regard to the extension of railways in East Africa are revealed in the Colonial Budget, which in 1914 sanctioned an expenditure for this purpose of £1,840,000, of which £850,000 was the first instalment of a loan for the construction of a branch line from Tabora to Ruanda, £270,000 to the extension and improvement of the Usambara Railway, and the remaining £720,000 to the continuation of the

Central line from Tabora to the lake. It was estimated that the total length of the branch line, Tabora to Ruanda, would be 481 kiloms., and the total cost £2,357,500, plus a sum of £142,500 for surveying and improving the River Kagera, its tributaries and adjacent watercourses, together with provision of water-craft. Any savings on the main line were to be devoted to the Ruanda branch line. The construction of this line was to be commenced in 1914, and it was estimated that it would be completed in from three to four years. Its effect would be to open up the north-western districts of Urundi and Ruanda, which have not yet been thrown open to Europeans, and large quantities of native produce such as hides and skins, ground-nuts, cotton, oil-palm kernels, &c., were expected to be carried by the new line from the thickly populated north-west, where a conservative estimate places the number of cattle at 300,000, in addition to sheep and goats.

A further sum of £107,500 was provided as the first instalment of the cost of extending the northern railway between Tanga and Moschi to Aruscha, a distance of about 81 kiloms. The total cost of this extension was estimated at £307,500, and it was expected that it would take two years to complete. The line was designed to open up a region said to be suitable for white settlement.

Further sums of £100,000 were provided for the alteration and completion of the line from Tanga to New Moschi and £62,500 for new rolling-stock and two cranes in Tanga.

PLANTATION CULTIVATION.

THE plantation system in German East Africa was introduced in the early days of the Company's occupation, but its expansion has only been seriously undertaken in the last fifteen or sixteen years, being assisted and facilitated by the construction and extension of the roads and railways which link up the fruitful regions with the ports and local markets. The three distinct plantation regions are Usambara in the north with its port of Tanga, along the track of the Tanganyika Railway from the sea to Lake Tanganyika, and in the southern district, which is served by the port of Lindi. The northern plantations behind Tanga, Pangani, Wilhelmstal, and on the slopes of the Usambara were the first in the colony to be taken up, and they are consequently in the most forward state of development. The plantations on the Rufiji and the central district follow the course of the trans-colonial railway, and those in the south are generally located in the coastal regions of Lindi. Isolated plantations are also to be found in the less accessible districts of Mahenge, Iringa and New Langenburg. Many promising plantations are also growing up in Muansa and in the vicinity of Bukoba in the agricultural German territory on the shores of Lake Victoria, while further plantations, alternating with native cultivations, are located in the vicinity of Kiliman-

jaro and on the Meru. Many British companies own interests in plantations in the south and along the Tanganyika Railway, and the agricultural districts of the north have also been opened up with the aid of British capital. According to the statistics for 1911, the acreage covered by plantations in German East Africa was :—

	<i>Hectares.</i>		<i>Hectares.</i>	
Rubber	.. 32,682	of which about	11,526	productive.
Sisal-Hemp	.. 21,335	.. ..	11,363	..
Cotton	.. 14,308	.. ..	14,308	..
Coffee	.. 2,904	.. ..	1,199	..
Capok	.. 1,490	.. ..	424	..

In 1913 the acreage covered by the plantations was as follows :—

Rubber	.. ..	..	113,267	acres.
Sisal-Hemp	.. ..	..	61,887	..
Cotton	.. ..	..	35,770	..
Coffee	.. ..	..	12,007	..
Capok	.. ..	..	6,580	..

There were, according to the latest statistics published in 1911, 699,568 cocoa-nut palms in the possession of Europeans, representing an area of about 6,500 hectares. Of these 162,172 trees, representing about 1,500 hectares, were productive.

COTTON.

According to the British Consular Report, published in 1915, the cultivation of cotton in German East Africa can hardly have been said to have emerged from the experimental stage, but it has

enjoyed the advantage over other crops in that the Government have taken the keenest interest in its development and have even come to the assistance of the planter. Distinct progress has been made in the direction of a more scientific treatment of soil and crop, and cotton experimental farms have been established at Mpanganya, on the Rufiji River, and at Myombo, near Kilossa, south of the Tanganyika Railway; at Muama, on the Victoria Nyanza, Tabora, in the central district, and Lindi, in the south. The object of these farms is to evolve a variety of the plant best suited to local conditions and to put a period to the dependence of the colony upon other countries for its seed. These experimental stations (further particulars of which will be found in a later chapter) were established as the result of an agreement arrived at on March 14th, 1910, between the Imperial Colonial Office and the Colonial Agricultural Committee, whereby the former took over all cotton experiments in order to place them on a broader basis, thereby increasing the capital expenditure. The following was the general plan of the campaign: The institution of agricultural stations for experimenting with different varieties of cotton, cotton-seed, manure, and irrigation; the destruction of plant diseases; the scientific analysis of cotton soil, and the organisation of a meteorological service. The Colonial Agricultural Committee, on the other hand, was to take over the technical part of cotton exploitation, the construction of ginning stations in connection with the

German machine market and German markets for the purchase of the cotton, the purchase of cotton by the Committee at a guaranteed price, the distribution of prizes (quality, plant, and ploughing), loans on crops and transport reductions, exploitation of all refuse material, the inspection of cotton districts, preliminary irrigation surveys, &c., the control and inspection of cotton qualities in Germany, and cotton-growing exhibits and exhibits of agricultural implements, &c., &c.

SUPERIORITY OF PLANTATION COTTON.

These experiments have already proved that the American upland variety is best suited as regards quantity to the districts of Rufiji, Morogoro, Tabora, and Lindi, and that the plantation system, as it has been tested in Rufiji, is superior to native cultivation. In 1912 1,500 bales were produced in Rufiji, of which 800 bales were grown in European plantations and 700 bales by natives. One plantation, employing on the average 600 workmen, had an output of 430 bales. A comparison between this and the total output to be attributed to approximately 100,000 natives shows that, proportionately, the odds are enormously in favour of the plantations. Moreover, the plantation output would have been much more important if labour had been more prolific at harvesting time. Less successful have been the experiments made in the hinterland of Tanga, the cause being that climatic conditions in that district are totally different from those obtaining

in other parts of the colony. There are two sharply defined rainy seasons, but very irregular as regards their occurrence—it happened one year that there were no rains during the sowing season, whereas, in another year, the bolls were ruined by an untimely rain. It is therefore an open question whether cotton-growing will ever be a success in the north, excepting where artificial irrigation is introduced over large areas freed from rain irregularities. In the Rufiji district, on the other hand, the conditions are very favourable—always supposing that danger of floods has been removed by the regularisation of the river. The advantageous use that can be made of steam ploughs, and the abundance of hand labour available for picking, seem to point to this district as an ideal field for cotton cultivation in plantations.

Cotton was grown on 165 plantations in 1910, but no statistics are available respecting the number of plantations occupied solely in the cultivation of cotton, as on many sisal and rubber plantations cotton is grown as a catch crop during the early stages of growth of the plants and trees. Steam ploughs have only been employed on a few plantations, and most of the planters are compelled to have recourse to manual labour, the prevalence of the tsetse fly rendering the employment of oxen impossible. This is a serious handicap, as manual labour is not only very expensive but is said to be insufficient for a proper treatment of the soil. The acreage under European cultivation in 1913 was about 35,000 acres, on 6,000 acres of which cotton was grown as a

catch crop. The seed of the Egyptian varieties, which were imported yearly from Egypt by the Colonial Agricultural Committee, and distributed among the natives for a raincrop without irrigation, was not successful. The Egyptian cotton, as a rain crop, failed by reason of the many diseases which affected the plant—more particularly a quite new and hitherto unknown disease, called locally “kraeuselkrankheit” (crinkling disease), which produced great havoc, especially on the European plantations.

Franz Kolbe, in an article dealing with the outlook for the cotton industry in the colony, writes: “In the interior of the colony the rainy and dry seasons are well defined and regular—a circumstance that is bound to favour cotton cultivation. The most promising cotton-growing districts have not been exploited yet, owing to their situation far from the ordinary routes of transport. Such districts are Ussangu (on both banks of the Big Ruaha), Rukwasenke, and the Wembare plateau. In Ussangu and Rukwasenke cotton grows wild and is also cultivated on a small scale by the natives. Artificial irrigation will be necessary on the Wembare plateau. The Government expert, reporting on the last-named region, states that the composition of the soil is extremely favourable to cotton-growing, being almost identical with the best Texas and Mississippi soils, and that the region, capable of being irrigated, would not only amply pay for the construction of a canal leading out of Lake Victoria, but would, if grown

with cotton, produce such quantities that the world's market value would be appreciably affected."

NATIVE CULTIVATION.

The Government made strenuous efforts to induce the natives to embark in cotton cultivation, and in the districts of Muansa, Bagamoyo, Morogoro, Kissaki, Mohoro, Kilwa, and Lindi, their endeavours met with some response. In the year 1910-11 about 170 tons of seed were distributed, only one form of seed being distributed in each district, in order to obtain a uniform quality in the crop. In addition to giving the seeds to native cultivators, the Government guaranteed them a standard price for their crops and offered rewards in the shape of cash or agricultural implements for the best quality of cotton produced. Experimental farms were established at Mpanganya and Nyombo, and instruction in the treatment of crops was given by white officials. But as a result of the experiments that had been conducted up to the outbreak of the war, it had not been decided whether the plantation system, or that system whereby the native cultivates his own plot, is the best in the interests of cotton growing, but, according to the results obtained so far, it can be asserted that the majority of the natives of German East Africa (with the possible exception of the inhabitants of Muansa) are not capable of independent work, and have to be permanently under European control. A new system of cultivation is being tried

in the south in Lindi, which may be found to be adaptable in future to large tracts of land in German East Africa. According to this system, European landowners sublet land to the natives for the purpose of growing cotton, or they induce the inhabitants of the neighbourhood to grow cotton, at the same time allowing them an advance in cash, to be repaid out of the crop. In this way they exercise a certain control over the cultivation of cotton which can only tend to improve it. The results so far obtained under this system speak very highly in its favour.

The British Consular Report records the fact that a sum of £10,000 for 1913 and each of the following four years to promote the development of cotton growing in German East Africa was voted by the Reichstag in connection with the estimates for 1913.

SISAL.

The Editor of the *German Colonial Gazette*, writing upon "The German Colonies in 1913" in the German Year Book, says, under the heading of German East Africa: "Sisal is to-day the most important product for export. In 1912, sisal hemp to the value of £375,000 was exported, and both quantity and quality much improved in 1913. . . . Sisal culture in German East Africa is of very recent origin. Some twenty years ago Dr. Hindorf imported a few sisal plants from Central America. Of 2,000 plants, only seventy-two could be kept alive, and yet to-day there are millions of plants cultivated."

According to the British Vice-Consul, the cultivation of sisal has been a great success, and seems to have an assured future, as the crop is admirably adapted to local conditions. In 1911 11,212 tons were exported, with a value of £226,500, and the fibre has fetched good prices, as much as £35 being paid for the ton. The plantations are not confined to one district, but are scattered over the whole colony. In 1911 there were 53,387 acres under cultivation, and this in 1912 had increased to 61,877 acres. The plant thrives on a variety of soils, and so far no disease of any importance has attacked it. The actual fibre, which is the marketable product, forms only 4 per cent. of the whole leaf, and experiments are being made to utilise the 96 per cent. which at present goes to waste. There seems to be no danger of over-production, as the demand for this commodity for the manufacture of ropes, especially ships' cables, is continually on the increase. The exports of sisal have been made hitherto entirely to Germany.

Sisal, which comes from Mexico, and is called after the Mexican port of that name, is a plant which lives from six to eight years, but the span of its utility is limited to about four years, during which time it produces yearly from sixty to eighty leaves. For the first few years a field of sisal plants, or agaves, is carefully tended and weeded. When the harvest season comes around, natives cut off the outer leaves of each plant—some of them grow to a height of 1½ metres, tie them up into sheaves, throw them on a lorry, and transport them to a factory.

Here the leaves feed a specialised machine, which separates the fibres from the surrounding pulpy matter. The fibres are then washed, cleaned, and in a couple of hours, when dry, they are bleached. When this has been done they are placed in an automatic brush, which removes any foreign substance which may still be hanging to the thread, and the fibres are then laid side by side in strands. These are eventually taken to the baling section, where, under hydraulic pressure, the sisal hemp is packed into bales of about 250 kilos. each. In order to avoid damage on their journey, the bales are wrapped in sackcloth and tied with hemp rope.

THE SISAL HEMP MARKET.

The fact that the German East African sisal hemp fetches a better price in the market than the Mexican sisal is a proof that the German planters cultivated and prepared it more carefully than elsewhere, while its strong resemblance to manilla hemp enables it to be used for many more purposes than the Mexican product. As regards the increasing supply of East African sisal hemp, it will not affect the market, because the demand, owing to the more general use of the agave fibres, increases proportionately. In other words, the home consumption will be able to take much more than the present output. An over-production is not to be feared; on the contrary, the hemp industry would welcome to-day an increased output of the raw material. The state of the market is, moreover, very favourable to the planter. The

cost of production of a ton of hemp amounts to 400 marks; the sale price is 700 marks or more. The German East African Sisal Plantation Company have shown excellent results, the last dividend having been fixed at 50 per cent.

At the Third International Congress of Tropical Agriculture, held in London in 1914, Professor W. F. Bruck, Professor of Tropical Agriculture at the University of Giessen, read a paper in the course of which he said that German East Africa was the most important German colony from the point of view of fibre cultivation. Extensive experience, he explained, had hitherto only been gained in German East Africa, where sisal cultivation had been carried out for about twenty-five years. The cultivation had proved most successful where worked on a large scale. Therefore it can only be carried out in a profitable manner by sufficiently well-founded companies. In point of fact, the bulk of this material exported from the colony is produced by a limited number of plantations only. The total amount exported in 1913 was 20,834 tons. Formerly the hemp was decorticated by so-called "raspadores," i.e., simple apparatus worked by hand. Now all large undertakings have given them up in favour of larger machines worked by power. The apparatus most commonly used in East Africa, Krupp's "Corona" machine, decorticates 100,000 to 120,000 leaves daily. The labour question alone, said the Professor, absolutely demands the use of such large machines. Since a single sisal plant produces about

250 leaves during the term of its life, it is easy to estimate that for profitable cultivation of sisal the area available must be very large. The greatest care must be exercised in the choice of a country suitable for the growth of the *Agavæ*. It is not easy to lay down general rules with regard to soil and climate. Many mistakes have been made, and thus large sums have been lost. Altogether, the cultivation of sisal is by no means easy. In conclusion, he emphasised that sisal hemp is, and will most probably remain, a comparatively unimportant item in the world's commerce, and that therefore too intensive cultivation might easily lead to over-production.

RUBBER.

Rubber has suffered by the fall of prices and caused the editor of the *German Colonial Gazette* to question whether East Africa will ever be able to compete in this trade against the East, where cheaper cost of production is possible. The German Consul at Dar-es-Salaam, in his last report, writes :—

“ The set-back in the economic development of the colony is a serious one, as rubber cultivation is one of its most important interests, there being probably 19,000,000 trees planted in the colony, of which about one-half are ready for tapping. Owing to the low prices, all the plantations have limited the number of hands employed, and two of the largest have suspended tapping entirely. The planters are heavily handicapped by having to pay the cost of

recruiting labour in the interior and its transport down to the plantation. The costs often amount to about £2 10s. per head, before work is begun, and the rate of wages is high—about 16s. 6d. per month for a Wanyamwezi tapper. Owing to a slight rise in the price of rubber, tapping has been resumed by some of the planters, and there is a more hopeful feeling. The smaller planter has probably a better chance than the large company, his working expenses are less, he can often obtain local labour cheaply or get time-expired hands without paying recruiting fees and, in addition, he can keep his men under more personal control. The outlook for the larger estates is far from reassuring, and it is said that some of them have already begun to cut down the rubber trees to make room for other crops. The Colonial Economic Committee is taking steps to introduce a standard quality of East African rubber, the absence of which is another difficulty that has hampered the planters. There is only one large washing and curing factory in operation in the colony, at Muhesa, though there are several smaller ones in Usambara. Most of the planters wash the rubber themselves, with the result that it has often to be done again in Europe."

The position of the rubber industry is described in the latest British Consular Report (published in May, 1915) as follows: "The area under rubber cultivation in German East Africa increased from 81,705 to 112,257 acres in the year 1912, and the amount of rubber exported increased from 684

metric tons, with a value of £180,500, to 1,017 metric tons, with a value of £362,012. In addition to above acreage under *Manihot glaziovii*, there were 1,010 acres under various other rubber trees. At the end of 1913 there were not far short of 19,000,000 rubber trees in the Protectorate, of which about half were ripe for tapping. The approach of the crisis in the rubber industry due to the over-production of Eastern rubber was foreseen in 1912, but it fell, nevertheless, with unexpected suddenness on the plantations in German East Africa, and will prove a serious set-back to the promising economic development of the colony. The large plantations, with their heavy working expenses, are the worst sufferers, as it costs them about 2s. f.o.b. and 2s. 1d. c.i.f. to produce their rubber. The small planters, many of whom employ cheap local labour, can produce at less expense, and it is possible that they will weather the storm, but the outlook is not reassuring for the large plantations. In response to urgent appeals, a certain amount of assistance has been afforded by the Government, but it is unlikely that any official assistance will enable the planters to effect the very considerable reduction in the cost of production they will require if the price of rubber does not rise. Of this there seems small permanent hope. The improvement of the quality of the rubber exported by the establishment of a standard quality and the planting of crops, such as beans, maize, &c., which yield quick returns, to supplement or even replace

the rubber trees may afford the planters a way out of their difficulties, at least, temporarily."

This story of the failure and disappointment of the rubber industry can be traced to the economic rather than the agricultural side of the venture. Rubber cultivation was proceeding satisfactorily in the Usambara district and the hinterland of Tanga, and remarkable developments were taking place when the activity in the home market was reflected in German East Africa by a sudden increase in the number of the plantations and in the amount of rubber produced. Many plantations were put on the market by their owners, who, in order to enhance the value of their property, extended the planted area with a haste which was detrimental to the value of the crops. Eight rubber plantations passed into the hands of British companies at very high prices; in fact, the total capital of the British undertakings in the hinterland of Tanga, which are almost all rubber plantations, is about £1,200,000. The value of the exports of plantation rubber had risen steadily during recent years until, in 1910, it took the first place among the exports of the Protectorate. This rapid increase is probably artificial to a certain extent, as, in order to take advantage of the high prices prevailing, many young trees were tapped before reaching maturity, while other trees were over-tapped. At the end of 1910 there were 248 plantations with a cultivated area of 63,990 acres and 20,558,965 trees. Professor Zimmermann, of the Institute at Anami, has published the following

figures as representing the average yields of dry rubber from trees of different ages :—

Age of Trees. Years.				lbs. of Rubber. Per acre.
4	..	..	..	44
5	..	..	..	88
6	..	..	..	132
7	..	..	..	176
8	..	..	..	176

The average number of trees per acre is now about 320.

Practically all the rubber planted is *Manihot glaziovii*, which can be tapped at the age of three years. Other varieties, such as *Kicksia*, *Hevea brasiliensis* and *Ficus* are planted, but mostly by way of experiment. Near Langenburg there is a small plantation of *Landolphia*. No entirely satisfactory method of tapping the trees has been as yet discovered. Most planters have, after various experiments, returned to the original system of collecting the rubber by means of regular series of shallow incisions. The rubber juice exuding through these incisions is coagulated by means of an acid solution on the trees and afterwards collected by hand. There are machines at Muhesa, Mombo and Tanga for cleaning the rubber, rolling it and drying it until it assumes the form known on the market as *crepe*. Most of the rubber plantations are in the Tanga hinterland, but there are a few others near the ports of Kilwa and Lindi, and along the Central Railway. Of the total value of the plantation rubber exports in 1910, Tanga's share was £156,259, as against £8,338 contributed by the rest of the

colony. Of the total export to the value of £180,314 in 1911, Germany took £126,931 and the United Kingdom £52,957.

CEARA RUBBER FAVOURED BY CONDITIONS.

Mr. F. A. G. Pape, F.R.G.S., a planter who has studied rubber cultivation in the Straits Settlements, in Ceylon, Java, Borneo, the Moluccas, Burmah, Siam, and India, has expounded his belief that Equatorial East Africa is one of the finest regions in the world for the cultivation and production of rubber. In a series of articles written in 1910, Mr. Pape points out that Ceara rubber has found all the conditions conducive to its highest and best development in the East Coast of Africa, and that, like the Mexican Sisal plant, which has materially improved in every way in East Africa since it was transplanted there, and now produces the very finest hemp of its class in the world, so has the Ceara rubber tree very essentially improved in its new surroundings. It is not only the geographical situation which tallies, for Mombassa, which is about the centre of the East African rubber regions, is exactly on the same parallel of latitude as the City of Ceara in Brazil, South America.

Ceara rubber has been proved to be an extremely hardy specimen, extraordinarily free from fungoid and insect pests. It will withstand drought in a most remarkable degree. Several cases have been noted where a plantation has withstood a drought lasting for ten months and another of eleven and a half months, without any appreciable injury or

damage. It has also been found that white ants do no damage to the growing Ceara rubber, although they are there in countless myriads and are practically ubiquitous. It is almost impossible to pick up a stone or a branch or grub up the soil without finding millions of them. In dry weather, Mr. Pape tells us, their burrows criss-cross in all directions over the ground. They are in dry blades of grass and up the dead and partially dead trunks of trees. If your house is of wood, they are sure to be in it, and if the walls are of stone, they have their nests and run-ways in them. You may not be aware of it, but you are sure to find it out when they begin to swarm, that is the winged division of them, i.e., the females, just before the setting in of the rains. Out of some imperceptible crevices they will come like a rivulet down a mountain side, and before you know it, a room or the whole house is a nightmare of fluttering wings and noisome insects, crawling all over you and your belongings and your food, and the only remedy is to clear out and leave the field to them until the siege is over. It is a common sight to see—in the dry weather especially—the trunks of the rubber trees covered with a cake of mud, as much as five or six feet above the ground. It is all the work of those tiny insects, the white ants, and they do it in a single night. But when you scrape this rough crust off with a stick, no harm is done to the tree at all, the bark is not even touched, or any incisions or wounds made in the wood at all! Why these marvellous busy-bodies should perform such

stupendous work, for such it is from their standpoint at any rate, and all for nothing, or at least for no visible benefit, has always been a puzzle to naturalists. For it must be borne in mind that all this stuff, which will sometimes fill several baskets, has to be carried in tiny mouthfuls by these diminutive masons from undergrowth up to a height of six feet, and has to be cemented with a sticky substance excreted from their mouths. The solution seems to be that they are after moisture which they hope to find in trees away up from the ground, and as they invariably work and move under cover, these housings have to be erected in their upward advance. Yet when left alone, the white ants will always very shortly abandon the structure and proceed elsewhere. Excepting for the unsightliness, one might as well leave these clay-walls on the trees for all the harm they do. Goats and sheep and small antelope evince a strong distaste for young growing Ceara rubber, and that is why the plantations can be used as grazing grounds for cattle and sheep, &c., with advantage, as they keep the grass down and automatically manure the place and at the same time leave the rubber severely alone. Where wild pigs and porcupines occur it is quite another matter, and stout and careful fencing has to be resorted to. For these animals love to dig up the fleshy root-bulbs of the young rubber and they devour them with great relish. It is only in the coast region, however, that these animals abound, where they were primarily attracted, and flourished and multiplied upon the

numerous native plantations of sweet potatoes and yams and cassava. The undergrowth of the jungle is thereabouts so thick that it affords ready and safe shelter from persecution. Where this latter is cleared away, however, by the hundreds of acres for plantations, and where good watch dogs are kept, these jungle marauders are soon checked and finally cleared out altogether.

CAREFUL CULTIVATION NECESSARY.

A simple and economic but not indispensable system of irrigation is very beneficial in the very early stages of the plantation, when the young seedlings are all the better and will take a better hold if they get a little water all the time. When once they are firmly established they can well wait for the remittent showers of rain, and even then the lateral ditches are very helpful to catch and hold the rain water until it soaks in. When making the ditches it is necessary to be very careful to keep them sufficiently distant from the trees in order to obviate any chance of injuring the roots, which lie rather close to the surface.

If plenty of labour is available and no irrigation has been resorted to, it is a good plan to construct a trench around the trunk of the trees, starting about two feet away from them and heaping part of the earth up against them. But very strict supervision is of first importance, in this case, to see that the roots are not injured. Under normal conditions the young

trees will be a foot high the first month and about as thick as a slender pencil.

At the end of six months they should be seven to eight feet high and about $\frac{3}{4}$ inches in diameter two feet from the ground, and so on, until at the age of three years they should be twenty-five feet high and about six inches in diameter about two feet from the ground.

Mr. Pape advises the provision of a nursery of some extent, contemporaneous with the planting, from which new plants can be drawn as required to fill the gaps made by missed seeds and the ravages done by birds and insects. In a month or six weeks it becomes evident which seedlings are the most robust and which are likely to lay. The most backward ones can even now be removed with impunity so as to give as far as possible more sustenance to the remaining ones. The gangs of men in charge of the plantation under their head-men and superintendents will now also be fully occupied with weeding, for the plenteous rains will have caused a rank and luxurious growth of grass and shrubs to spring up. Most harmful of these are the convolvuli of their various kinds, the tendrils of which grow a foot or more in length in a single day and night. They twist themselves around the young rubber plants, and if not attended to, strangle them. It is necessary to exercise the most constant care and supervision, and it is stringently required to look after each plant daily to bring it along to a stage of growth, when it may be safely left to look after

itself. This does not come to pass until the plants are about six months old, when they have attained a height of eight feet and are nearly an inch in diameter.

The Ceara rubber is a deciduous tree and sheds its leaves between the rainy seasons for a considerable period, so that to the uninitiated a hibernating rubber plantation looks sick or dead, and this is another reason why close planting is permissible. A good deal of nonsense has, indeed, been promulgated by casual visitors to this region about the dead appearance of these trees at such a season, and unfortunately this has, off and on, found its way into print with detrimental and discouraging results, but if these same people had just taken the trouble to prod one of these same trees with a stick only, even high up among the branches, or scratched the trunk with their thumb-nails, they would have been agreeably surprised at the ready and voluminous flow of latex which would have promptly exuded and run from the wound.

THE PROBLEMS OF PLANTING AND TAPPING.

There was in the beginning a good deal of controversy regarding the best mode of planting the Ceara rubber. Some advocated the wide apart method, say, 15-20 feet between each tree, and some counselled a closer cultivation, apportioning five hundred trees to the acre. Some attempts were even made to plant the trees within a few feet of each other, and then gradually, as the plants grew

bigger, to thin the plantation by bleeding the undesirable and superfluous ones to death. However, the results were anything but encouraging, and gradually all "fancy" methods were given up, and the standard is now to plant 400-500 trees to the acre. This procedure has answered the purpose best and has given the best results. The crown of the trees becomes by no means cramped in this way, for the tendency of the branches of a Ceara rubber tree is upwards at an acute angle and does therefore not require any very great spread. Eight to nine feet of intermediate space will be found amply sufficient.

It is generally stated that Ceara *Manihot Glaziovii* is tappable in $2\frac{1}{2}$ years, and even two years, but this is very misleading, as at this age everything depends on climatic conditions. Where the soil is good and the rainfall plentiful it is tappable in $2\frac{1}{2}$ years to three years, but where the soil is poor and the rainfall scanty it is not tappable before $3\frac{1}{2}$ to four years, and even then the trees do not yield the same amount of latex as in the more favourable districts. The latex of the first tappings from immature trees contains a very high percentage of resin, and the product is in consequence of a lower value than that obtained from mature trees. Of course, should the rubber be properly washed, the price fetched would be much the same as that collected from older trees, but the consequent loss in weight would be very high.

Mr. Pape considers that when the trees have

reached the age of two years and four to six months, that is, when they have had five rainy seasons, they are in a normal state ready for the first tapping. If the rains have been copious it is no harm to take from them from four to six ounces of rubber. If the rains have been backward the first figure should not be exceeded, but it is safe to assume that the first crop should yield 125-150 pounds of dry rubber per acre. This yield increases very rapidly, as the development of the tree from one season to another is very rapid and in some cases extraordinary and phenomenal. In the third year the normal Ceara rubber tree will have a diameter of about six inches a foot or two from the ground and will be well over twenty feet high. At the end of the fourth year the tree will show evident signs of maturity. Well regulated and ever slightly increased tapping will have produced a tendency to a steady and ready yield, and at this period the tree will yield and should produce one pound of dry rubber. In the fifth year it will be found that over 75 per cent. of the trees in the plantation will yield two pounds of dry rubber, which will give to the acre a production of three-quarters of a ton of this highly desirable commodity. Unfortunately, the majority of the East African planters still stick to the old-fashioned crude way of gathering and marketing their product, with the result that the prices averaging for Ceara rubber from that region average very low indeed. Yet it has been proven that rubber has been sold from there, which on account of its brightness, strength

and elasticity fetched excellent prices and earned the highest encomiums. What has been done in one instance can be safely carried out right through. "It is, in fact," writes Mr. Pape, "the duty of all concerned and interested that this satisfactory state of affairs should be encompassed all around. And all should endeavour and co-operate to the best of their ability and means to bring this about, and place the East African Ceara rubber into the front ranks of the market, to which it so deservedly belongs. It can surely not have escaped anyone's notice how our competitors in Malaya have laboured and endeavoured in unison almost to a man to bring their product in the best possible shape and purity and at the least possible expenditure upon the market, and have now attained the proud position of being head and shoulders above everybody else. They have naturally in their favour a longer experience and existence, and the powerful aid of large financial resources. We in East Africa are comparatively new-comers, but we have definitely proven that we have found a congenial habitat for the hardiest rubber-producing plant in the world, which is *Manihot glazroon*. Up to date over 12,000,000 sturdy trees of this species in various stages of development bear witness to this, and they flourish on one tithe of the area required for other sorts."

But the tapping has not been sufficiently investigated and is not yet understood. We all know that it requires radically different treatment to the *Hevea latex* for instance, for in contradistinction to the

latter, the latex of the *Manihots* will coagulate very rapidly on exposure to the air even, and artificial fluents have to be employed to keep it liquid for conveyance to the curing-houses. On the other hand, it appears very feasible that a method may be found which will produce clean, technically-pure Ceara rubber in a very cheap and rapid manner. Referring to the subject of rubber-tapping, a writer of experience remarks that all experiments so far have only ended in a return to the most familiar and simple means of stabbing or incising the bark of the trees, which so far has resulted in the best returns with the available labour. "To introduce any new method at the present time would only lower the output. It is very easy to collect beautiful samples in small quantities, but when it comes to quantity, and unskilled labour has to be relied on, the results are quite different. Naturally, the labour question will be brought up as an excuse for the absence of dividends, but this dearth of labour is already well known to the merest novice in the management of German East Africa estates, and also to those who have the handling of the properties on this side."

"The East African plantations are, and will be, worth all the money that has been invested in them, and there are many more like them," says Mr. Pape. "But if the powers that be had been satisfied to put their house in order first and got the properties in up-to-date, first-class condition as a preliminary—and then promised good results—all would have been well, and the satisfaction all around would have never been

shaken or disagreeably stirred over one or two initial mistakes and set-backs. There will now follow a general reviewing and settling down of conditions to the normal, and then a trend upwards increasingly good. Some little capital will have to be spent in various directions to correct errors and mend unsatisfactory conditions and phases. But no one need shirk this, or fear any but a definite improvement in every way."

THE LABOUR QUESTION.

With regard to the labour conditions on the rubber plantations, they were described in 1911 by a sufferer by them of considerable experience as being "of the worst." Very little change was shown in the labour problem between 1911 and the beginning of the war, and this authority, writing in the former year, says: "Most of the labour employed is free labour, and none of the recruited labourers are indentured for more than six months, this being the limit under the existing laws. Most of the indentures are only for three months, whilst many of them are for one month only, the consequence being that no sooner do the natives begin to understand their work, some becoming experienced tappers, than they return to their own villages in the interior. From the foregoing it will be readily understood that recruiting becomes a very heavy item, and a drain on the resources of the plantation, as it becomes necessary to employ a resident agent in the interior.

"The importance of the labour question is thus

easily understood, and matters are not likely to improve, the competition having recently become more serious than ever. This is accounted for in a great measure by the vendors of the estates already sold having, previous to the disposal of their properties to the British public, applied for and taken up large areas of land in the immediate neighbourhood and planted them up, with the idea of again selling at a profit. The number of labourers on the estates fluctuates from week to week, as they are constantly leaving in batches of from fifteen up to 200 and more at a time. The trouble does not end here, as it is impossible to rely upon more than one-half of the labour force turning out to work daily, owing to the independent character of the natives. There is at present no remedy owing to the lax system in vogue by the Government, and no steps are apparently taken by managers to try and combat this state of affairs. A great deal might be done to alleviate matters if the natives were properly housed and made comfortable, and a store opened at which they could buy their requirements at a reasonable cost.

“ Many of the plantations boast of having one-half to over a million trees, and are yearly clearing and planting up hundreds of acres of land, but here again the necessary labour to collect the rubber from millions of trees does not exist. Therefore it would surely be far better and more to the point if they were to use all the labour they have in collecting the rubber from the trees they already possess, and

keeping the plantation clean and free from jungle. The more land they open up the worse matters are likely to become, for rubber in a jungle which cannot be collected is of absolutely no value. Mainly owing to this drawback most of the plantations have been valued and sold at prices far in excess of their actual worth. The shortage of labour has always existed in a very acute form, but has often been passed over when valuing and estimating probable returns.

“To organise the labour force, the first step to be taken is for the different plantation owners to combine and petition the Government to amend present labour laws and to give every assistance to the planters by opening up labour depots in the interior for recruiting purposes. At present, owing to competition, there is no standard rate of wages. A planters' association should be established, with certain rules, the members agreeing to pay a uniform rate of wages, and to cease trying to entice away one another's labourers or to engage absconders. One great fault lies in having foreigners to manage what are supposed to be British-owned plantations, bought with British capital. When the plantations were worked by their original owners they were conducted on the most economical lines, but since acquirement by their present owners the management expenses have increased fourfold.”

WILD RUBBER.

The rubber statistics published by the German Government have, since 1908, differentiated between

plantation and wild rubber. Only the latter comes into consideration as far as native production is concerned. The chief area in which wild rubber is collected by the natives lies to the south of a line drawn from Bagamoyo to Ujiji on Lake Tanganyika. The fall in exports in 1908 resulted from the fall in the market price, in consequence of which the natives largely abandoned collection for the time being. With the recovery of prices, however, in 1909 and 1910, and especially during the inflation of the rubber boom, the activity of the natives became very great, but with the return of prices to their normal level this activity, to a great extent, abated. In many districts the natives only collect rubber as a last resort, when the payment of their taxes falls due and no other method of obtaining ready money presents itself. Dar-es-Salaam is the chief port of shipment, the Central Railway having attracted a large proportion of the trade that formerly went by caravan to Bagamoyo. Muansa exported fifty-eight tons in 1910, valued at £17,423. The exports of wild rubber from Dar-es-Salaam in 1909 was valued at £32,273, and in 1910 at £59,497. The total exports of wild rubber in 1910 were 335 tons, with a value of £145,147; in 1911 there were only 172 tons, valued at £58,731. This decrease is to be partly ascribed to the fall in prices, which caused the natives to give up rubber collecting in favour of other occupations, and partly to the fact that the 1910 figures include rubber imported from the Congo and re-exported. This rubber is not included in the 1911

statistics. The drop in the value of exports from Muansa (from fifty-eight tons to four tons) is accounted for by the fact that the Ujiji (Congo) rubber was carried for the first time by the Central Railway instead of going *via* the Uganda Railway. The exports of wild rubber from 1909 to 1912—including the wild rubber exported from the coast ports and that sent *via* overland routes—are as follows :—

			£
1909	..	..	82,565
1910	..	..	145,147
1911	..	..	58,731
1912	..	..	52,915

COFFEE.

The cultivation of coffee in the Usambara Valley was one of the many experiments made by the plucky settlers in their endeavours to find the proper crop for which the region offered an ideal plantation. After proving the unsuitability of tobacco, coffee was tried, and Javanese beans were imported and planted. The results were disappointing, and the slump on the market spoiled the profit that might have been made. It was also discovered that the volcanic soil of the Kilimanjaro-Meru district was more favourable for the crop than the gneiss soil of Usambara, and its cultivation as a staple crop was abandoned in 1910. But in the Kilimanjaro-Meru region from one to three lbs. of coffee can be gathered from trees in the third year of growth. The result

has been that planters have turned their attention from cotton to coffee, and the number of trees planted has increased so rapidly that it is estimated that there were about 2,000,000 trees in that district alone at the end of 1912. The coffee produced is said to be of an excellent quality. In the year 1910-11 there were 3,383,000 coffee trees in the whole Protectorate, of which 1,000,000 had not reached maturity; 133,000 of these trees were in the Bukoba district, and in 1911 the trees in this district had increased to 237,195, and the value of the coffee produced there was estimated at from 4½d. to 6½d. per lb. The growing importance of the coffee crop is illustrated by the following figures:—

	<i>Exported.</i>				<i>Value.</i>
	<i>German Tons.</i>				£
1899	50	..	4,817
1905	641	..	23,204
1908	1,010	..	47,111
1909	908	..	44,349
1910	995	..	41,887
1911	1,176	..	63,300
1912	1,575	..	95,150

Of the 1910 crop the amount exported *via* the Uganda Railway from the Bukoba district was 412 tons, of the value of £10,733. The falling-off of the amount of the crop in 1909 was due to a bad harvest, caused by parasites.

COPRA.

The latest British Consular Report draws attention to the fact that in those districts where trade

in such products as rubber, ivory, wax, &c., has decreased owing to the centralising influence of the railway, the planting of cocoa-nut palms has been undertaken to counteract the consequent loss entailed. Thus the value of the copra exports from Bagamoyo increased by 165 per cent.; from Pangani by 171 per cent.; from Kilwa by 123 per cent.; and from Mikindani by 119 per cent. Lindi, which formerly imported coconuts from Mafia, now supplies its own wants and has commenced to export copra. The prospects for this crop are regarded as distinctly good. Soil and climate are admirably suitable, and the palm is said to flourish not only on the coast but even as far inland as Morogoro and Kilossa, 130 and 181 miles distant from the coast respectively. There is an Arab plantation in Tabora, 527 miles from the coast, but its economic importance is regarded as problematical. The number of palms owned by Europeans in 1912 was 784,458, of which 178,799 had reached the productive stage.

The cocoa-nut palm plantations on the coast and on the Island of Mafia, which are chiefly in the hands of Arabs, have risen considerably in value of recent years, a palm which would have fetched 6s. to 8s. several years ago being now valued at from 16s. to 20s. The average annual yield per tree is about 4s. 2d. The large increase in the value of the trees is due partly to the increase in the demand for the nuts by the native labourers employed on plantations and in railway construction. The greater

portion of the copra exports are sun dried ; two hot air drying installations having been erected in the colony, one at Kilwa and one in the Island of Mafia. Practically the whole of the shipments are made to Zanzibar by dhow. In 1910 copra to the value of £65,064 was thus exported, and of the remaining exports £11,324 were to Germany and £19,024 to Marseilles.

OTHER CROPS.

Other crops, including capok, sugar-cane, tobacco, spices, chillies, and cereals, are grown in East Africa, but the cultivation of these products is comparatively unimportant. Capok, which is employed for stuffing mattresses, &c., finds a market in the interior, where it fetches about 1s. per lb. The experimental cultivation of Turkish cigarette tobacco has yielded no definitely successful results, and the "Boer" tobacco, also grown in the Kilimanjaro-Meru district, sells for only 2s. 8d. per lb., as against 4s. 6d. to 6s. 8d. per lb. which the imported South African variety commands in Dar-es-Salaam. An attempt is being made to cultivate cloves in European plantations in Mafia, and chillies have been grown with success in Wilhelmstal. Maize, wheat, barley, and oats are all raised by Europeans in the highlands, but they find small sale. Potatoes can be grown in the high-lying districts, but the profits are small, and this commodity continues to be imported into the colony from British East Africa. In the Morogoro district the real silk caterpillar (*Bombyx*

mozi) has been successfully reared, and the production of silk from the cocoons of the wild silk caterpillar (*Anaphe*) has been undertaken by the African Silk Corporation in the Bukoba district. The area under cocoa cultivation was 300 acres in 1912, an increase of fifty acres on 1911. Only 175 of the acres were ripe for production, the export being twelve tons, with a value of £699. Millet, especially sorghum, is grown, but only as food for native work-people. There are large tracts of land available for the cultivation of this crop, which has excellent nourishing qualities, but there is little chance of it becoming an important article of export for some time in view of lack of facilities of transport to the coast and high tariff rates by rail and sea. The cultivation of rice by the natives is being widely extended. It is largely grown for home consumption, and is said to be equal in quality to Indian rice, of which nearly 13,000 tons were imported in 1912. The variety cultivated is mostly water-rice, the chief producing district being Muansa, but it is hoped that large tracts of rice-producing land will be opened up by the Tanganyika line. The cultivation of sugarcane shows a tendency to increase in those districts which are adapted for its growth, particularly in Urundi, where about 36,000 canes were placed on the market. Sugar is produced in but few districts to an extent worthy of mention, Muansa being the principal district with a production of twenty-one tons in 1912. The export of sugar in 1912 was

twenty-six tons, with a value of £380 (this included both raw and refined). The export of syrup and molasses declined from 214 tons, with a value of £1,679, in 1911 to sixty-three tons, valued at £580, in 1912. This decline in the export is to be attributed partly to greater consumption in the interior and partly to the competition of cheap Indian molasses.

CLIMATE AND LAND TENURE.

Experience has shown that the large planter has hitherto done best in German East Africa. A large planter of four years' standing has, in his plantation, a valuable possession which he can turn into cash at almost any time. The cattle-raiser may own a good herd, but he runs the risk of losing his all, owing to the inevitable cattle diseases, while the small settler—who does not increase in number—lives a precarious hand-to-mouth existence, without much hope of amelioration in his condition and with the prospect of serious loss in the event of illness.

It must be borne in mind that even in the highlands the climate cannot be compared with that of Europe. The climate on the coast, where the air is heavily charged with moisture, is hot and enervating. There is always a certain amount of fever, and the coast towns cannot be regarded as satisfactory places of permanent residence for Europeans. The highlands in the interior are, however, for the most part healthy. The nights are always cool, and in some places mosquito nets can be dispensed with.

At the same time, some of the favourite districts for European settlement are not free from reproach. Malaria exists in the Kilimanjaro-Meru district, and in Leganga, the centre of the settlement district of the Kolonial Gesellschaft, which is 4,500 feet above sea level, malaria is endemic. On several of the European rubber plantations, which appear to enjoy an immunity from mosquitoes, cases of fever are frequent.

Under German rule Crown land was obtainable from the Government on certain conditions. Land was not sold outright in the first instance, but leased at the rate of 5 per cent. of the sale price of from ten to 100 hellers (100 hellers=rs. 4d.) per hectare per annum. The condition attached to leasehold was that cultivation of the land must be commenced immediately and be extended at the rate of one-tenth of the land annually, and that it could not be purchased until at least half had been brought under cultivation. Pasture land was obtainable on the sole condition that the land was fenced with wire or quickset hedge. The number of contracts under which land was taken up on lease in 1910 was 139, of an area of 183,275 acres. In 1909 only eighty-six contracts were made, with an area of 80,750 acres. Sales of Crown land (i.e., all unowned land) to private individuals were as follows :—

			<i>Sales.</i>			<i>Acreage.</i>
1908	..	..	35	..	..	21,722
1909	..	..	50	..	..	28,900
1910	..	..	121	..	..	94,907

The number of planters who, having fulfilled the necessary conditions, are allowed to purchase the land held by them on lease has steadily increased. In 1909 the favourite district was the Rufiji. In 1910, owing to the speculation in rubber, the demand for land was most lively in the districts of Tanga, Pangani and Wilhelmsthal.

THE ORGANISATION OF EXPERIMENTAL WORK.

FROM an article on "The Organisation of Experimental Work in Agriculture in the German Colonies," by Dr. Walter Busse of the Imperial German Colonial Office, which appeared in the *Bulletin of the Imperial Institute*, one learns that experimental work in almost every branch of agriculture was enthusiastically undertaken by the various Colonial Governments. The system of study, research and experiment was found to be of particular service to the farmer, settler and planter in the performance of their most difficult work, in demonstrating how they could procure the highest possible return upon their farming operations, and in raising the agricultural output of the natives and increasing the agricultural prosperity of all the German over-seas dominions. "Our experimental work," Dr. Busse explains, "serves ultimately the self-evident demand for a sound national trade policy, especially by encouraging in our colonies the production of those raw materials which Germany must still draw from foreign lands for the sustenance of its people and industries."

In East Africa the Biological Agricultural Institute at Amani, in the Usambara Mountains, was founded in 1902, and after the creation of a Department of Agriculture in 1909, it became the centre for the organisation of the agricultural staff which dis-

charged all official duties connected with the development of agriculture in the Protectorate. District agriculturists were appointed in Bagamoyo, Dar-es-Salaam, Kilwa, Lindi, Kissaki, Morogoro, Rufiji, and Tabora, and five effective experimental stations and one experimental fruit farm were established. In 1913 the white agricultural staff of the colony consisted of fifteen first-grade, ten second-grade and five third-grade officers. The purely scientific researches were conducted by the Biological-Agricultural Institute itself with the aid of a director, two chemists, two botanists, a zoologist, and several gardeners. The scheme of work comprised the introduction and cultivation of tropical economic plants, scientific research and experiment in the interest of the planting industry of the colony, the study of plant pests and diseases, manurial experiments, soil analyses, technical research on the more valuable indigenous products, and the holding of courses of instruction for planters.

WORK ON THE VARIOUS STATIONS.

The Kibongoto Agricultural Experiment Station at Kilimanjaro, founded in 1911, served primarily the special needs of European planters in the Kilimanjaro and Meru Mountains. It carried on all branches of agriculture (tillage operations, plantation culture, management of pastures and breeding of cattle), and conducted cultivation experiments with cotton, Turkish tobacco, coffee, cereals, leguminous crops, and other vegetables. It also experimented

with the raising of local races of cotton and the most important kinds of grain, with fodder plants for the improvement of pastures and the hay crop, and with green manures. The European staff consisted of a manager, who was an agricultural expert, a trained scientific assistant and a Turkish tobacco planter, and special experiments were undertaken with the cultivation, curing and fermentation of Turkish tobacco.

Between 1810 and 1812 three special experimental cotton stations were established in the Protectorate for the purpose of (a) Comparative cultivation experiments with different species and varieties of cotton with a view to deciding which of the better-known kinds were most suitable for local conditions ; (b) Breeding experiments for the production of more valuable varieties and local races from specially suitable kinds of cotton by means of continued individual selection, and the increase of the best sorts by mass selection for the production of seed ; (c) Rotation experiments with various other crops ; (d) Experiments on the proper working of the soil and on green manuring ; (e) Observations and experiments concerning cotton diseases and pests. In addition to this general scheme of work, the chief officials of these stations had to advise the European cotton planters in their respective districts, while their assistants acted as travelling instructors to the natives. At the Mpanganya Station, on the Rufiji River, in the Mohorro district, school instruction was provided for the natives, and both there and at the

Myombo Station, near Kilossa, and the Mabama Station, near Tabora, experimental work on lines indicated above was conducted.

At the Morogoro Station for fruit culture, founded in 1910, the programme comprised the cultivation of tropical fruit trees and the distribution of young plants to Europeans and natives.

Although the Germans were only at the commencement of their agricultural development work in Africa when their activities were diverted into other channels by the outbreak of the war, Dr. Busse expressed the hope that they were at least proceeding on the right lines. "An inexperienced colonising people undoubtedly meets great difficulties at the beginning," he admits, "when its own knowledge of tropical lands is small. Germany has adopted two methods to overcome these difficulties; the first is to learn from the older, more experienced colonial nations, and to bear in mind the experience that has been gained during the lapse of years in foreign dominions. For this purpose experts of the German colonial service have carried out studies in various parts of the world, and, as we gratefully recognise, have received much courteous assistance from foreign governments and private persons, so that they have, in each case, returned richly informed. The second method is to transfer to colonial agriculture as far as possible the long-approved system of German agriculture, which rests on a strong scientific foundation, built on the results of exact investigation and methods. In this, however, one

has to guard against indiscriminate transfer to the equatorial regions of practice peculiar to European conditions. The rational methods of German agriculture, perfected by the long and assiduous work of generations, have to be very largely transformed into new methods and systems for employment in the tropics. By this means the German Colonial Government has kept pace with the present-day organisation of agricultural experimental work in the colonies."

CATTLE.

The natives of German East Africa pay little attention to cattle breeding, but in spite of the diseases from which few districts are free, and the spreading of the dreaded tsetse fly, it is reported that cattle are on the increase. In 1910 the cattle in thirteen districts were counted, and an estimate made of the cattle of the rest of the colony. The totals thus arrived at were 1,489,178 head of cattle and 2,793,437 head of sheep and goats. Cattle breeding by Europeans has made but little progress, the failure of the various experiments being attributed to lack of system. The number of cattle owned by Europeans in 1912 was 43,617, and that of sheep and goats, in the breeding of which no progress has been made, was 41,647. Horses numbered 202, mules 375 and donkeys 2,543.

Malignant catarrhal fever and coast fever are the two endemic diseases which affect all the cattle, with the exception of the Ruanda cattle, which are immune from coast fever and cannot spread the

infection. The serious outbreak of rinderpest towards the end of 1912, which probably entered the Protectorate from British East Africa and swept southward, was arrested at the Ruaha River. Although it was less virulent than in previous outbreaks, the rate of mortality varied from 10 to 70 per cent. of the cattle affected.

Experiments made with wool-bearing sheep and with Black Forest goats have failed from a lack of practical knowledge, but pig breeding has been tried with better success, and the animals have increased their numbers to a satisfactory extent. Ostrich farming in the colony has not yet been attempted, but the local bird is said to produce a high quality of feather, and there seems no reason why ostrich farming should not be successfully undertaken.

MINING AND MINERALS.

THE receipts of the mining department for prospectors' licences, taxation on output, &c., have increased from £748 in 1908 to £1,062 in 1910. At the end of the latter year there were seventy-six prospecting fields in the Protectorate on which 111 claims had been taken up. In 1909 operations were begun at the Kironda Mine, near Sekenke, in the Iramba plateau. In that year 3,515 tons of ore were crushed, and 176 kilos. of smelt gold and 139 kilos. of fine gold produced. In 1910 7,333 tons of ore were crushed, 429 kilos. of smelt gold and 347 kilos. of fine gold produced. The operating company employed twenty Europeans and 700 natives. The output of gold was commenced in one place in the Muansa district, where there are also several gold-fields marked out for ownership, on which operations have not yet commenced. In 1909 111-kilos. of gold ore were exported, in value £11,988; in 1910 378 kilos. of gold ore were exported, in value £42,134. In 1911 the gold output increased to 450 kilos., but in 1912 it fell to 234 kilos. This gold was mainly obtained from the Kironda Mine, where veins of gold-bearing quartz occur in association with intrusions of diorite and quartz-diorite. Stamp mills were in use, and the gold was presumably won chiefly by amalgamation in connection with these mills, though some of it is also obtained by cyanide treatment.

The average yield of gold per ton of ore mined at the Kironda has been as follows :—

					<i>Grammes per ton.</i>
1909	..	..	..	..	38'90
1910	..	..	..	..	46'45
1911	..	..	..	..	45'92
1912	..	..	..	..	29'29

The Iramba plateau consists chiefly of granite, but partly of schists, and these rocks are traversed by dykes and veins of diorite and pegmatite. At some localities there occur numerous quartz veins that carry gold. These gold-bearing quartz veins are usually small and variable in character. At and near the surface the deposits are fairly rich in gold, but this is due to surface enrichment, and they are found to become much impoverished at even shallow depths. Samples of gold-bearing quartz at a depth of from ten to twenty metres were found to contain 129 ozs. of gold per ton; whereas samples of the sulphide ores from a depth of from thirty to forty metres were found to contain not more than a few pennyweights per ton.

Gold deposits closely resembling those of the Iramba plateau occur in the Ikoma goldfield, some sixty miles east of Speke Gulf (Victoria Nyanza). This area is occupied by gneiss and hornblende schists, the gneiss being predominant. The hornblende schists are traversed by gold-bearing quartz veins. Some of these veins are small, and recall the Iramba type; others are of more considerable dimensions

Near the village of Sargidi, a short distance north of Ikoma, and near Nassa, on the south-east of Victoria Nyanza, gold-bearing quartz veins of the Iramba plateau type have been found.

At Ussongo, in the northern part of the Tabora district, a porous ferruginous breccia containing about one oz. of gold per ton has been observed; and at Ssamuje, to the north of Ussongo, there occurs itabirites and mica schists which are traversed by gold-bearing quartz veins.

Gold has also been found in alluvial deposits near the headwaters of the River Umbekurui, which flows into the Indian Ocean and separates the Kilwa and Lindi districts in the south of the Protectorate.

FUTURE OF THE GOLD INDUSTRY.

Very little is yet known about the auriferous possibilities of German East Africa, but a number of Rand mining men, who have visited the colony, speak favourably of its future as a mining region. Mr. H. Loret, an ex-mine manager of the Rand, who was sent to report upon a property, the location of which was not divulged, is said by the *South African Mining Journal* to have found it unattractive, but that he was able to peg out for his syndicate certain gold-bearing claims of greater promise. Another ex-Randite, Mr. Jeffries, who made a long and adventurous prospecting trip in the colony, declares that the country is traversed by a well-defined gold-bearing belt, but as no geological survey has been made, the value of the discoveries can only be guessed

at. Gold is not the only mineral found, as tin, copper and mica have been traced. The Sekenke Gold Mine is producing and paying dividends. Mr. Jeffries speaks enthusiastically of its prospects, the value at 500 feet vertical being over two ozs. per ton. Water is abundant. During the dry season most of these rivers are partially dry, or water stands in big pools, but by digging five or six feet in the sand, clear running water will be obtained, and this method is adopted by the natives for watering thousands of cattle. In many parts very fine mining timber, chiefly acacias, can be had for the price of cutting it down. As the country is thickly populated, and boys are to be had from 5s. to 8s. per month, inclusive of food, no difficulty will arise on this point for many years to come. At the Sekenke Mine and at Lassama, Mr. Loret saw the natives working underground, and was told that these natives take very kindly to mining and have no fear of going underground.

A correspondent writing in a Queensland paper says: "I have just returned from German East Africa, and I was fortunate in discovering a very fine gold reef of large formation, about twelve yards wide: the lode can be traced for over a mile. I have pegged 164 acres, and intend returning again in a few days, when I hope to locate other reefs. This is in a new district, and from what I have seen will be the best find here. There will be a move here before long in mining. I hear that in German East Africa tin has been found, and in three months' time I hope to go to a part for tin—it will take beating, judging

from specimens I have seen. It is very difficult prospecting here during the wet season, as the long grass is so high, but in the dry season it can be burnt off, and it is then a picnic prospecting. A prospector living here must be fairly strong."

THE MICA DEPOSITS.

Other economic minerals in German East Africa are mica, garnet, coal, iron, uranium minerals, copal, trona, and salt. All these exist in such quantity that they have either been already worked or will prove worthy of consideration under suitable conditions as regards transport facilities. Mica, gold and garnet have been exported almost wholly to Germany in the past; while most of the copal has been exported to Zanzibar and England.

Mica of the muscovite variety occurs in pegmatite veins that traverse gneiss in various parts of the Protectorate. An occurrence is reported in the Ssuwi Stream, which drains the northern slopes of the Pongwe Mountains in the Bagamoyo districts. Other localities for mica are Mkondami, in the Nguru Mountains; Tangiro and Mount Fissage, in the Mahenge district; and the Uluguru Mountains, in the Morogoro district. Still other localities worth mentioning as showing the widespread distribution of pegmatite mica in the Protectorate are Mombo, in the Usambara district; the Woto plateau, in the Langenberg district; and Mawa and Muera, in the Lindi hinterland.

Of these various occurrences the most important

are those at several places in the Uluguru Mountains, and it is these that are chiefly mined. The predominant rock in these mountains is a biotite gneiss. The gneiss is cut by numerous veins of pegmatite, which dip vertically or at slight angles up to seventy feet or so. The mica is of the muscovite variety; it is typically of a greenish or greenish-brown colour, and is highly transparent in thin plates. The chief mica localities in the Uluguru Mountains are those on the Mbakana River in the southern part of the range, and those to the north of Morogoro at the northern end of the range.

On the Mbakana there is at one locality a mica-bearing zone of pegmatite stone some ninety feet in length with a maximum width of eight feet at the surface. At a depth of sixteen feet the width increased to over fifteen feet. Mica has been found here in sheets measuring about a square yard in area; and plates, quite free from flaws, measuring up to about $1-1\frac{1}{2}$ feet have been obtained.

Associated with the mica in these Uluguru pegmatites are the minerals uraninite (pitchblende), rutherfordine, samarskite, galena, zinc blende, bismuthinite, copper pyrites, iron pyrites, arsenopyrite, garnet and tourmaline.

The mica of German East Africa is highly valued for use in electrical insulation, for which purpose it is as good as ordinary Indian muscovite and Canadian amber mica, though it is substantially inferior to the best Indian ruby mica.

The total amount of mica exported from the

Protectorate during 1912 is given as 153,806 kilos., an increase of 55,507 kilos. as compared with the output for 1911. Except 560 kilos., which was exported to Zanzibar, the whole of the mica exported during 1912 was sent to Germany.

Almandine garnets of value as gemstones occur in hornblende gneiss at Namaputa, in the Lindi district, a little to the north of the Rovuma River, in the south-eastern portion of the colony. The garnets are easily obtained from the surface rock, and they are also found loose at the surface. They are described as having a fiery columbine-red colour. They are stated to have occurred abundantly as specimens of good quality, and to have been well received on the market. Recently, however, garnet mining seems to have been almost at a standstill, the output in 1912 having fallen to 8 kilos. from 154 kilos. exported in the previous year.

COAL AND IRON.

Coal-bearing karoo strata occur in various parts of the plateau highlands, notably in the area surrounding the northern portion of Lake Nyasa; and these strata contain coal beds. Many of these beds are thin, and consist of coal of poor quality, as, for example, those near the mouth of the Ruhuhu, on the east side of Lake Nyasa. On the other side of the lake, in the British Protectorate of Nyasaland, and opposite the Ruhuhu, are the coal-bearing Karoo beds of Mount Waller. More important than these Ruhuhu deposits, however, are those in the Karoo

beds to the north-west of the lake on the Songwe and Kivira rivers. In this area a section of the Kandete stream shows a thickness of eleven metres of coal in a total thickness of 20·7 metres. One portion of this section shows a seam of coal 4·90 metres thick with two thin shale partings, which together have a thickness of only six centimetres.

The average composition of the coal of this 4·9 metres seam is as follows: Carbon 60·60, hydrogen 3, oxygen 13, sulphur 0·25, moisture 4·33, ash 18·50 per cent.; the yield of coke was 78·70 per cent., and the calorific value 5·657 calories. Certain of the seams show a higher percentage of carbon, up to 70 per cent., and a calorific value of 6,840 calories. The ash in some samples falls as low as 5 per cent. The coal is of the bituminous type, and is of considerable value as fuel, and on account of its coking property could be used also for smelting iron ore.

Iron ore of the lateritic type occurs at the surface in many parts of the colony, and is smelted in a primitive way by natives at the Ndapa, in the Livingstone Mountains, north-east of Lake Nyasa. Hematite ore occurs in the Upangua district, at the southern end of the Livingstone range, and near Lake Nyasa. Magnetic iron ores (some of which are titaniferous, however) occur in thick bands in the gneisses at various localities. Notable among these are the occurrences in the Uluguru range. In the Mbakana stream titaniferous iron ore with as much as 25 per cent. of titanium dioxide occur. Iron ore,

including magnetite and hematite varieties, have also been found in some quantity at Midindo, near Mamboya. Magnetic iron ore and limonite occur also in the Ruanda district and other places in the region between the Victoria Nyanza and the northern end of Lake Tanganyika, where they are to some extent worked by natives.

Associated with muscovite in the pegmatites of the Uluguru Mountains there are uranium minerals containing a high percentage of uranium, and therefore of importance on account of their radio-active properties.

At many localities on the coastal plain and near the coast, as on the Noto, Makonde and Muera plateaux, fossil resin of the copal variety is dug from the surface sands by natives. The pits from which it is obtained are very shallow, being dug to a depth of not more than two feet. The winning of copal in this way is sufficient to repay the labour of the natives, who send the copal to Lindi and other markets on the coast. The product comes on the British market *via* Zanzibar, and is known here as Zanzibar copal. There has been a gradual decrease in the exports of copal during recent years, except in 1912, when there was a small increase to 106 tons, worth nearly £6,000. Partly owing to the extent to which the copal-bearing alluvium has been already worked, and partly owing to the fact that there are other and more remunerative fields of labour for the natives, it is not expected that this increase will be maintained.

NATIVE POPULATION, LABOUR AND EDUCATION.

THE native population of German East Africa is estimated at between seven and eight millions belonging, broadly speaking, to the Bantu tribes. In the past these settled tillers of the soil were harried by warlike nomadic tribes, such as the Zulus, the Watussi and the Masai, and until the German occupation the agricultural population were continually attacked and plundered by these warriors from the south and the north. In olden times the natives living in the immediate neighbourhood of the Masai region dared not call his cow or his life his own, and the German authorities banned the Masai to a reserve, realising that this step was absolutely necessary if the country was to make peaceful and economic progress. Among the oldest inhabitants of the country are the Wasagara, in Usagara; the Washambara, in Usambara; the Wanika, slightly to the north; the Wagogo, in Ugogo; the Wahehe or Mafiti, between Songea, Mahenge and Iringa; the Wanyamwesi in the neighbourhood of Tabora; the Wasekuma, in Muansa; the Wadshagga, on the slopes of the Kilimanjaro; and the Wahutu, in Ruanda. The members of these tribes are of well-developed stature, and the colour of their skin varies from brown to black. Very strong men are to be found among them, more particularly among the Wanyamwesi, that ideal porter or "coolie" tribe,

which is also noted for its aptitudes at tilling the soil and cattle-raising.

On the coast are to be found the so-called Wasuaheli, who, as generally happens in the case of coastal tribes, are not of pure descent, having been freely contaminated by foreign blood, mostly that of Arabs. Ever since the Middle Ages Arabs have migrated into the country from Muskat, and Arabs were the predominant face in German East Africa until the advent of the Germans. The Msuaheli adapts himself easily to his surroundings, and is therefore in request as a servant. The blunt, naïve manners of the native living in the interior are as foreign to him as are the characteristics of the German peasant to the German townsman. His language, the Kisuaheli, containing many words of Arabic origin, is the universal trading idiom of half equatorial Africa. Each tribe in the interior has its own dialect, but only the very old inhabitants—and they are rapidly dying out—are unable to understand Kisuaheli; as for the younger natives, they all understand it, and the majority speak it.

The average density of population is approximately eight to the square kilom., excluding the area between the great lakes. The pacification of the country tends to produce a more equal distribution of population than under the old conditions of tribal warfare, but there are still districts where the inhabitants are very few, e.g., one-third of the large central district of Tabora is still totally uninhabited. The ever-increasing plague of the tsetse-fly has denuded

some districts formerly rich in cattle. It is hoped that the march of civilisation, by introducing sources of water supply, combating the tsetse, and eradicating sleeping-sickness and other diseases, will so extend the inhabitable area that the population will have room for substantial increase. The chief causes which operate against the increase of the population, since the cessation of tribal warfare, are lack of proper food for and treatment of young children, abortion, syphilis and other diseases, and the employment of the men as porters or on plantations away from their families. The work of the medical authorities and the abolition of much portage by the introduction of railways, as well as the provision of means for plantation workers to be accompanied by their families, should gradually remove, at least partially, these main hindrances to the increase of the population.

The settled natives cultivate their land with rice, maize, groundnuts, bananas, sweet-potatoes, sugarcane, beans, and, to a certain extent, with coffee and tobacco, according to the suitability of the soil. The cultivation of cereals is mostly carried on for home consumption owing to the absence, in general, of a market for surplus production. Where, however, a market does exist, or where the concentration of numbers of workpeople in one district creates a demand for food, it has been proved that the native will increase his output of his own accord. More recently an attempt has been made to get them to grow cotton, but, if the truth be told, the materially-

minded native prefers to grow crops that represent food rather than crops that have to be converted into money before they can supply his wants. It must be borne in mind, when considering the "incorrigible" idleness of the native, that he has little comprehension of the mysterious fluctuations of prices in the world market, and is, therefore, easily disheartened by a sudden fall in the value of his productions. He thinks he is being cheated when the European offers him a lower price for his crop than in the previous year, and gives up cultivation. Again, he has little idea how to compete with transport difficulties and bring his crops to a distant market. The cultivation of large tracts of land is in itself specially difficult in a land where the crops as they ripen must be constantly defended against the depredations of pigs and hippopotami at night, and of birds and monkeys by day.

NATIVE ARTS AND ORNAMENTS.

Industrially, certain tribes are remarkably clever. In the days of the powerful chieftain Sinna, a school for teaching the art of manufacturing spears existed in the Kilimanjaro district. The Jagga spears are known for their excellent workmanship, as are the Masai spears. On the coast beautiful mats are made, and throughout the country are to be found richly decorated gourds used for water, *pombe* (native beer), or *tembo* (palm wine). These gourds are frequently of quite an original design, artistically etched with a red-hot needle or decorated with pearls and "cami"

shells. Quite tasteful at times are the personal ornaments of the natives and some of their utensils, such as the carefully carved ivory snuff-boxes, which are generally worn around the neck. Necklaces, bracelets, and anklets are manufactured of copper and brass wire. Combs, statuettes, and stools are carved out of wood with considerable talent. Not less original are pottery articles, the greatest adepts in the art being the Washambara, who manufacture all sorts of clay figures, pipes, statuettes, &c. Both music and dancing are eagerly cultivated. In years gone by the drum was to be heard every evening in every village throughout the country, on moonlight nights the noise continuing until daybreak. The drum is beaten with the palms of the hand, and is accompanied by singing and dancing. Sometimes, owing to the size of the drum, the noise is extraordinarily loud, but generally speaking the rhythm of the songs is melodious.

THE LABOUR MARKET SYSTEM.

It is difficult for the outsider to realise that, in a colony with so large a native population, a real labour scarcity can exist, but the fact remains that the labour problem in South-East Africa is one that the authorities have not yet solved. The tribes most popular with European plantation managers are the Wanyamwesi, from the Tabora district; the Wasukuma, from the shores of Victoria Nyanza; and the Wairamba, from the Iramba district in the south. These are employed largely on the planta-

tions in the hinterland of Tanga, but although the number of planters is few, they find it impossible to get all the labour they require. As the British Vice-Consul explains, the existence of large masses of the population who are dependent upon employment by capital for their daily bread, is a state of affairs unknown in East Africa. The natives have their own small farms, which they cultivate sufficiently to satisfy their few wants. Nature is bountiful, and it is often difficult to persuade the native, whose ideas of the dignity of labour are crude, to leave the cultivation of his own plot of land to work on some distant plantation under a European master.

In these circumstances the acquisition of labour is often difficult and expensive. Under the German system natives were obtained by a licensed recruiter and entered into a contract in the presence of the district officer, who satisfied himself that they understood their destination and the terms of their contract. A deposit of 5 rupees was made with the officer for each man recruited in his district, and the men brought to the plantations, by rail as far as practicable. It costs the plantations in the Usambara Valley about £2 13s. 4d. per man on the plantations. Contracts are made for 180 days, but the men must be released at the expiration of nine months whether they have worked for 180 days or not. About 50 per cent. return to their homes when their contracts are ended, about 25 per cent. stay on to work, with or without renewing their contracts, while 25 per cent. wander away to other

plantations. Wages in the Usambara Valley are from 12 to 15 rupees per month ; a weekly advance must be made as food-money.

About three years ago special officials were appointed in several of the districts where labour is most employed, e.g., the Usambara Valley and along the Central Railway, whose duty it was to superintend the relations between employers and labourers. The Government also came to the help of the planter by introducing regulations, under which a definite rate of remuneration was fixed for the labour recruiters, definite districts were assigned to these men for their operations, and the period of time for which labourers may be engaged was extended from six months to one year.

In the district of Dar-es-Salaam an experiment was made with "labour markets." Planters report to the district officer the number of hands required. With the assistance of the local chiefs, as many natives as possible willing to work are assembled at some convenient centre, where the planters can come and make contracts with the men directly. The natives who report for work do so voluntarily. The matter is arranged by the district officer, the labour recruiter is dispensed with, and the total cost to the plantations of procuring their labour is less than 1 rupee per annum. The system appears to work satisfactorily, at least locally.

According to the latest Consular Report, it is doubtful whether any final solution of the numerous difficulties is possible in the near future. It is the

opinion of many that if the native is not to be compelled to work by law he must either be taxed until he is forced to work to pay his taxes, or else he must be raised to a higher state of civilisation, when he will acquire fresh wants which can only be met by earning wages from Europeans.

In his "Thirty Years of German East Africa," Hans Zache says: "It is a falsely reasoned and falsely proved humanitarianism which seeks to take no cognisance of the education of the native for manual work. Work is provided by the European planters so that the colony may benefit by increased production, and not least also is it provided for the blessing of the negro." The blessing accruing to the native from the humanitarianism practised upon him by his German master may be questioned, but Teutonic endeavours to provide the negro with education are more manifest.

THE EDUCATION OF THE NATIVE.

In 1911 when the German Colonial Institute desired to ascertain the work done by the Government and the Missionary Societies in the way of educating the natives in their African colonies, they sent out over 2,000 printed *questionnaires* to the various persons in authority at the several schools, and from the answers returned Herr Schlunk, of Hamburg, prepared a report in book form. The value of the result depends upon the fulness and intelligence with which the answers were framed, and Herr Schlunk had to announce that the replies

he received from the authorities in East Africa were so vague and incomplete that it is impossible for him to give the exact number of schools and pupils in the colony, or to supply any definite information concerning the plan of instruction pursued. The educational work was in the hands of the Government and twelve Missionary Societies, nine of which were Protestant and three Roman Catholic.

The Government had seventy-eight elementary schools, with three European and ninety-five native teachers and 3,494 pupils; two higher schools, with five European and fourteen native teachers and 681 pupils; and three industrial schools, with three European and four native teachers and 137 pupils. The Roman Catholic Missions appear to have had 363 elementary schools, with 115 European and 459 native teachers and 31,274 pupils; eleven higher schools, with twenty-eight European and eleven native teachers and 724 pupils; and five industrial schools, with thirteen European and one native teacher and sixty-one pupils. The nine Protestant Missions, of which six were German, two English and one American, had together 512 elementary schools, with ninety-four European and 646 native teachers and 29,716 pupils; eighteen higher schools, with sixteen European and twenty-six native teachers and 472 pupils; and nine industrial schools, with ten European teachers and eighty-eight pupils. Altogether there appeared to be 1,001 schools in the colony, with 287 European and 1,256 native teachers and 66,647 pupils.

THE COURSE OF INSTRUCTION.

From the scantiness and vagueness of the information supplied in the German Colonial Institute report upon the course of instruction practised at the several schools, it is evident that the authorities connected with them either misunderstood the drift of the questions or observed a curious reticence in answering them. In the elementary schools the curriculum seems to have varied considerably. In sixty-eight of them no instruction was given in arithmetic, while in others zoology and drawing were taught in addition to the ordinary elementary subjects. The higher schools continued the instruction given in the elementary schools. In seventeen additional "Schools for Practical Work," twenty-eight European and thirteen native teachers imparted to 286 pupils instruction in building, carpentering, cabinet-making, printing, book-binding, brick-making, smiths' work, and tailoring, while in one school the girls were taught laundry work and the boys ironing. Sewing and cooking classes were also held, and, in most schools, lessons were given in farming and horticulture. The object of these "practical work" schools was "to turn out artisans for the Europeans, and women for domestic work, to develop old Arab handicrafts, and introduce new culture."

The cost of educational work was borne entirely by the Missions and the Government for their respective schools, an attempt to obtain fees from

pupils having, apparently, failed to produce revenue. No particular school hours are specified, and the days of the week on which school was held ranged from one to six. The practice of the compulsory learning of German which had obtained in the schools of every other German African colony was not followed in East Africa. In fact, the educational system in this colony was so casual and harmless that the ill effects which it produced among the natives of Germany's other colonies appear to have been non-existent.

RAILWAY DEVELOPMENT.

THE TANGANYIKA LINE.

GERMAN East Africa has undergone remarkable development during recent years, and at the outbreak of the war it had passed safely through the first critical stages in the history of its progress. The cultivation of Ceara obtained an enormous impetus from the rubber boom, and the success attending the planting of sisal and coffee served to further increase the exports. Even the commercial crisis of 1907 was practically powerless to impede the expansion of trade, and large new areas have been opened up for the acquisition of labour and the extension of European cultivation. The actual budget receipts from the Protectorate itself have increased from £160,900 to £623,750 during the last ten years, and the Imperial subsidy, which has decreased from £246,600 in 1902 to £180,900 in 1912, has been limited to the expenses of the military establishment in the Protectorate. Dar-es-Salaam and Tanga have grown into important towns, with handsome buildings and well laid-out streets. The white population of the former is about 900 and that of the latter town about 300.

Perhaps the most remarkable development of all has taken place in the direction of railway construction, and the regions served by the lines have made

extraordinary progress. Of late years, and especially in 1913, the Tanganyika Railway, begun in 1907, was extended from Tabora to the Lake, where the terminus at Kagoma was reached on February 1st, 1914. Before war was declared Parliament had agreed to construct a branch of this line from Tabora, 300 miles into the densely-populated and fertile regions of Ruanda and Urundi. The administration of the line is nominally in the hands of a company, but nine-tenths of the shares have been bought by the Government, and it is therefore practically a State railway. The Usambara Railway was started in 1896 by a private company, which, fighting against extraordinary obstacles, constructed forty kilometres. Then, owing to lack of funds, work had to be stopped. The Government took over the line and added another fifty kilometres to Korogwe (1902), Mombo was reached two years later, Buiko in 1910, and Neu Moschi, at the foot of Mount Kilimanjaro, in 1912.

Dar-es-Salaam which, a dozen years ago, was a dirty negro village, flanked with the grey stone houses of slave dealers and a few bungalows built by European settlers, is to-day a clean and imposing residential town, laid out with handsome squares and avenues, and furnished with handsome churches, hotels and public buildings, and neat, white, tropical buildings. The "Harbour of Peace" still shelters the native craft of dhows, but majestic liners now ride on its well-sheltered waters, and the lions which

used to ravage the native quarters have disappeared before the incursion of the electric light and the iron road.

CARAVAN TRANSPORT.

When the Germans first came to East Africa, Bagamoyo was the mainland port for Zanzibar and the emporium for much of the ivory, wax, rubber, copal, &c., collected from the interior. Here were congregated the European firms and the important Indian and Arabian merchants who despatched their caravans with brass-wire, powder, stuffs, &c., into the hinterland, to Uganda and the Congo. Thousands of bearers were wont to assemble in Bagamoyo, and in the 'eighties and 'nineties from one to two hundred thousand Wanyamwesi alone were available as bearers. From October 1st, 1903, to September 20th, 1914, 241 caravans with 7,064 people and 6,222 loads arrived in Ujiji from the coast, and about the same number of people and loads made the return journey. The great expense entailed by this class of transport could only be covered by the conveyance of valuable products, as each load of from 50 lbs. to 60 lbs. in weight cost from £2 to £2 10s. to send forward.

The carriage of a ton of 1,000 kilos. required forty bearers and cost £50, apart from the loss of interest on three months' transport. Ivory, rubber and such-like durable products could bear this expense, but in the case of maize, salt, rice, &c., such prices were prohibitive. In order that this class of

produce could be made marketable, a cheaper method of transportation was necessary. Already in 1891 the project of a railway starting from Dar-es-Salaam was under consideration—Bagamoyo, on account of its inferior situation and accommodation as a port was already doomed; but only in 1895 an arrangement was concluded between the Imperial Government, the German East Africa Company and the German Bank, by virtue of which the preliminary work in connection with the railway was commenced in the following year. But the lack of interest in the scheme in Germany brought the project to a standstill, and in 1900 Parliament refused the grant of £5,000 required to complete the survey of the track from Dar-es-Salaam to Morogoro. In 1904 a concession was made to the Deutsche Bank for constructing a single line track over this section, 209 kilometres in length, and on February 9th, 1905, Prince Adalbert of Prussia turned the first sod in Dar-es-Salaam. In December, 1907, the line to Morogoro was opened for traffic.

Meanwhile, in 1906, Freiherr v. Rechenberg was made Governor of the Protectorate, and he immediately recognised that a new policy in the administration of the country must be adopted. Rechenberg and Dernburg realised that the Morogoro Railway was useless unless it could be ultimately extended to Lake Tanganyika, and they set to work to give effect to their ideas. In 1908 a plan for the extension of the railway to Tabora was laid before the Imperial

Parliament, and the work of construction was begun in the same year. The East African Railway Company, which had taken over the completion and working of the Dar-es-Salaam-Morogoro section for the right of acquiring 2,000 hectares of land for every kilometre of line laid, entered into a contract to execute and manage the new track. A Government loan was made to supply the necessary capital, after the State had secured the greater part of the issued stock and a corresponding influence in the enterprise. In 1912, two years before the time that the State stipulated in the contract, the railway was opened to Tabora (848 kilometres from Dar-es-Salaam), and a proposal for its final extension to the lake was approved by the Government.

The new era for Dar-es-Salaam began with the commencement of this line, which now conveys the traveller from the port to Lake Tanganyika in fifty-two hours; but if the trade of the town has not increased as rapidly as might have been expected from its railway connection with the interior, it is explained by the fact that certain regions of this hinterland are so sterile as to be devoid of all economic products. Beyond the first principal station, Morogoro (225 kilometres), which is in itself a prospering settlement at the foot of the Uluguru Mountains, the sterile and waterless steppes begin, and continue to Tabora, at one time centre of the slave trade, and situate about 1,000 kilometres from the coast. Fruitful and productive lands begin here again, but the economic value of the railway can

never be dependent on these regions, but rather on its own terminus on Lake Tanganyika. This long, narrow body of water is in the nature of a second coast line for the colony, and assures the railway the traffic between the Indian Ocean and the regions surrounding the lake and beyond. Until the railway had reached Tabora the caravan transport of the surrounding country had been directed to Lake Victoria, to the greater profit of the Uganda Railway. But now it is gradually returning to Tabora, and the Tanganyika Railway depends at present on native cultivation and negro products. It is by no means certain whether European plantations will ever be extensively established in this region. But even then the middle section of the line will only be a paying concern when one or more branch lines will have been constructed towards the south, to the fertile Uhehe plateau, and the equally fertile Nassa plateau.

ECONOMIC PROSPECTS OF THE TANGANYIKA LINE.

Mr. Rudolf Wagner, in an article on the subject written in November, 1913, says: "Within recent years a lot has been written and spoken about the Tanganyika Railway as a section of the great trans-African system from east to west. It seems that the significance of the line has been exaggerated. It is true that the German railway constitutes the most rapid means of communication between the eastern Congo and the sea, but this is only important as regards the furthering of mails and passengers. Mails and passengers alone do not, however, make a

railway a paying concern. As regards traffic, the Suez Canal dues are against the eastern route to the sea; on the other hand, it must be admitted that the western route entails the cost of frequent transshipping. It is impossible to say at the present moment which of the three competing lines—the Belgian to the west, the German to the east, or the British to the south—will acquire the greater part of the trade. That there will be a terrible rate-war is practically certain. At all events, the three lines will do well not to build up too many hopes of being able to exploit lands beyond that traversed by their respective rails, and they will also do well to force the economic development within their own sphere.

“It is not intended in the above paragraphs to condemn the Tanganyika Railway. The construction of this railway was, both from political and economic motives, necessary, and had to be realised sooner or later. But, unless present conditions deceive, a lengthy period of development will be requisite before the line pays its way. It would be folly to speak of direct profits in the immediate future, and it will even take time before indirect profits are noticeable, because the regions traversed by the rails are still in a practically virgin state, and years will elapse before they can be regarded as important producers and consumers. To judge the Tanganyika Railway by Dar-es-Salaam's present trade were ridiculous, for the very simple reason that the trade statistics are influenced by the imports of railway material. It would also be superfluous to do so, because, come

what may, there can be no doubt that in the distant future Dar-es-Salaam will be one of Africa's most important harbours, and the Tanganyika Railway one of its most important thoroughfares."

A correspondent of the *Times*, writing under date, Zanzibar, February 3rd, 1914, on the subject of the Tanganyika Railway and its probable effect on the economic development of East Central Africa, says: "The construction of the Central Railway, as a section of the great trans-African system from east to west, was necessary from both political and economic motives. By linking up the east coast with the Central African lake system the Germans have entered into competition with the British lines from the south and east and with the Belgian transit route from the west. The aim of the Belgians to attract the trade of the Eastern Congo to the west coast has been frustrated; the combined rail and river service which they have built up will serve rather as a feeder than as a rival to the German line, for the latter possesses a rapidity and security of transit with which the former, owing to its numerous transshipments from train to steamer and from steamer to train, cannot compete. It is practically certain that the coast port for Urua, which may eventually be Lobito Bay, will for the present be Dar-es-Salaam, and not Matadi.

"On the other hand, it is evident that the British lines from the south will be unaffected, and that Beira will retain the export of the Katanga copper mines until the Benguella Railway reaches Ruwe,

while pending the construction of the Tabora-Muansa branch, the Uganda Railway will preserve its monopoly of transit from Lake Victoria to the east coast. Much will necessarily depend on tariffs, but there are indications that the rival lines will come to terms and avoid a tariff war. The Germans, then, would appear to hold the field for rapidity and security of transit, and when once their projected service of express trains between the coast and the lake is established, considerable returns may be anticipated from mail and passenger traffic. This traffic alone, however, is insufficient to make a railway a paying concern. In estimating the future of the Central Railway it must be borne in mind that the region it traverses is practically undeveloped, that the east coast route is handicapped by the Suez Canal dues, and that the trade of Lake Tanganyika will take many years to organise, owing to the fact that its population has been decimated by sleeping sickness. Consequently, it may be anticipated that a long period of development will be necessary before it yields any appreciable profits."

LAKE TANGANYIKA.

LAKE Tanganyika, the largest freshwater lake in the world, lies some 2,600 feet above the sea. It is 400 miles in length, from thirty to forty-five miles broad, and has an area of about 12,700 square miles. Burton, who visited the lake with Speke in 1858, described it as a vast body of water without an outlet, but in 1874 Cameron discovered the Lukuga, on the western coast line, to be an outlet, and thus proved that the lake was the head-waters of the Congo. In 1876 Stanley confirmed this discovery, and Hore, in 1879, declared the Lukuga to be a perfect outgoing torrent. Further examination by Thomson in the same year led to the conclusion, which has since been accepted, "that the outflow is intermittent, ceasing almost entirely after a period of scanty rainfall, and becoming again established when the lake level has been raised by a series of rainy years."

Lake Tanganyika has not been systematically sounded, but there is little doubt that it is generally very deep. Dr. Livingstone obtained a depth of 326 fathoms near Ujiji in 1871, and Victor Giraud at a later date reported 350 fathoms off Mrambi, on the west coast. The following soundings made by a German officer opposite the places named tend to indicate that the variations in depth are very considerable: Kigoma, 700 fathoms, without finding bottom; Albertville, 260 fathoms; Tembwe, 440 fathoms; Vua, 350 fathoms.

During the rains the lake is frequently subject to storms, which leave a heavy and sometimes dangerous swell, and in the dry season it forms a perfect wind-trap. The wind has frequently been known to change direction as many as eight times in the day, rendering navigation a difficult task. The Zanzibar correspondent of the *Times* says that animal life on the open lake is rarely visible, for the surface of its waters is generally too troubled to prove attractive. The openings of the rivers on its banks, however, are more sheltered, and the estuaries and backwaters teem with birds of every description. Conspicuous among these are white gulls, pelicans, white and grey kingfishers, curlew, cranes, plovers, egrets, coots, fish-hawks, to mention only a few of the varied species attracted to this delightful centre. Lazy, lounging hippos rise and snort from time to time, crocodiles glide softly but swiftly into the water, and fish rise continually, serving to remind the intruder that the water is as full of life as the air.

The lake would seem to have possessed for early explorers a singular fascination, and travellers have been unanimous in their verdict on its beauty and the scenery of its shores. "It reminded me," says Burton, "of the loveliest glimpses of the Mediterranean; there were the same 'laughing tides,' pellucid sheets of dark blue water, borrowing their tints from the vinous shores beyond; the same purple light of youth upon the cheek of the earlier evening, the same bright sunsets, with their radiant vistas of crimson and gold, opening like the portals

of a world beyond the skies ; the same short-lived grace and loveliness of the twilight ; and, as night closed over the earth, the same cool flood of transparent moonbeam, pouring on the tufty heights and bathing their sides with the whiteness of virgin snow."

Commander Cameron and Stanley have left on record a similar impression. "An immense broad sheet," is the latter's description, "a burnished bed of silver—lucid canopy of blue above—lofty mountains are its valances, palm forests form its fringes"; while Commander Cameron says: "The beauty of the scenery along the shores of the lake requires to be seen to be believed. The vivid greens of various shades among the foliage of the trees, the bright red sandstone cliffs and blue water formed a combination of colour seeming gaudy in description, but which was in reality harmonious in the extreme."

THE USAMBARA LINE.

THE great rivalry between Dar-es-Salaam and Tanga, the coastal termini of the rival railways, is centred around their respective harbours. Dar-es-Salaam can boast preponderance of tonnage of trade, thanks to the recent importation of material for railway construction, but the fully-developed plantation regions and prosperous European settlements of Usambara places Tanga in the first place as regards exports. Tanga's harbour is certainly the most important natural harbour in the colony. Surrounded by green palms, the town is picturesquely situate at the foot of the Usambara Mountains. Broad, shady streets, stately stores, hotels, and residential houses are its ornaments, the European houses being located in verdant gardens. Cleanliness and order are the town's salient characteristics. Even the native quarters, as an antithesis to most African towns, are cleanly and orderly, and the streets are broad, well-kept, and lined with shady palms and mango trees.

On leaving Tanga the Usambara Railway travelling west as far as Korogwe has to the north the fertile district of Wilhelmstal. A narrow-gauge branch line leaves the main track at Tengeni, and climbs north through the forest region to the Sigi River. Primarily intended for lumber transport only, the Sigi Railway has grown to be an important

economic factor in the plantation life of East Usambara, and a useful feeder to the Usambara Railway. Other small lines, northwards from the main line, are being planned in East Usambara—a proof that the thorough opening up of the district is progressing favourably.

From Korogwe, the centre of the plantation regions, where the fruitful Pangani Valley opens up to the west, the Usambara Railway turns to the north-west, leaving the northern slopes of the Mafiberg to the south. At Makuyani a twenty kilometre narrow-gauge plantation-train runs to Ambangulu. The scenery becomes wilder and more romantic as West Usambara is reached, with, in the distance, the crowned heads of Kwamonga, Mogamba, and Shangai, three of Kilimanjaro's most beautiful offshoots. Bare crags and wonderful perpendicular precipices alternate with thickly wooded hills and verdant valleys. To the south of the Shangai lies the Schumme Forest, a densely wooded plateau towering up above the Usambara Railway. This forest is one of the sights of West Usambara, and one of its most valuable assets. To link up the plateau by rail with the Usambara Railway would have been a very costly, if not an impossible task, owing to the precipitous nature of the 1,000 metre drop from the plateau to the valley beneath. But something had to be done, and a marvellous ropeway, over five miles in length, forming one of the most stupendous and

magnificent works of its kind in the world, was constructed.

MOUNT KILIMANJARO.

But the chief attraction on the Usambara Railway for tourists is the facility it offers for ascending from New Mishi to great Kilimanjaro, the highest mountain in German East Africa, and one of the few snow-covered peaks in Africa. The altitude of the highest peak (Kibo, or western peak) is about 6,000 metres; the eastern, or Mawensi peak, is about 5,300 metres high. A few years ago only a number of the hardest climbers could boast having explored the glacier regions of German East Africa; to-day any tourist can climb the Kilimanjaro at his ease—he can even reach the craters of the two peaks on the back of a donkey. In Mishi, at the foot of the mountain, a hotel awaits the traveller; in Maragu, on Bismarck's Hill, and at an altitude of 4,000 metres, are houses where he can rest. Both on the Kibo and Mawendi are signposts indicating the way; the construction of club huts and the improvement of the paths is being steadily furthered.

According to Government estimates the Usambara Railway alone will tap forests of a surface measure of 125,000 hectares, an area that will be more than doubled as soon as feeders have been constructed. The most important timber localities so far are the Sigi River in East and the Schumme Forest in West Usambara; but between these two extremes are miles upon miles of virgin forests trailing in a

north-westerly direction towards the giant Kilimanjaro.

USAMBARA'S ECONOMIC PROSPERITY.

Most of the wood is ornamental. In the Schumme Forest are huge cedars rising to a height of from 130 to 150 feet, of a soft, lustrous hue, that find a ready market in Europe. Mahogany and teak have been found in unimportant quantities, but of such excellent quality that they are being extensively planted and should eventually prove a valuable asset. But the more important woods of Usambara have names little known to the general public, though highly appreciated by coachbuilders, decorators, and workers in ornamental wood. Foremost among these is Mkweo wood, similar to American walnut and amenable to a high polish. This is extensively used by German coachbuilders in the decoration of first-class railway carriages. Mkenene and Mareka, the former yellowish with a pronounced odour of camphor, the latter a beautifully marked heavy wood, are also placed successfully on the market. From the Sigi mills are exported Mwule, Matamba, and Kenge wood. The first-named resembles teak, and fetches a good price in Hamburg; the second is largely used by cabinet-makers, and the third is an oak variety. A peculiarity of the Sigi woods is that, in spite of being hard and firm, they are light and easily worked.

The planters of Usambara made many experiments before they discovered the crops which could

be most successfully cultivated in this fertile region. They failed with tobacco, and their partial success with coffee was arrested by the market slump. Quinine was next tried, but insect pests rendered its cultivation more than difficult, and although acacia gave better results the planted area has not increased. Attention was then given to rubber and sisal, both of which have flourished exceedingly, while secondary crops, such as rice, sugar and cocoa-nuts, have been cultivated with gratifying results. The situation in the Tanga hinterland may be summed up in the words of a German author, who writes: "Usambara's economic prosperity, greater than that of any other district in German East Africa at the present time, depends on her woodlands and plantations, the latter producing, in the first place, sisal hemp; in the second, rubber and possibly cotton, and as secondary crops cocoa-nuts, coffee, tobacco, acacia, sugar, and rice. As time goes on these crops will be added to, and the prosperity of the region will increase, for East and West Usambara have been tried and have not been found wanting. In other words, the outlook is roseate, and German East Africa can pride itself on the measure of progress that has characterised Usambara in the past decade."

LAKE VICTORIA NYANZA.

That part of Lake Victoria Nyanza which has its coastline in German East Africa has a small white population—300 all told according to the latest

census—in the Muansa and Bukoba districts, but it is densely peopled by natives in Ruanda and Urundi. The imports into the region amounted in 1911 to £250,000, and of the exports which totalled £265,000, one half represented the trade in skins and hides, £50,000 was gold from the Kironda Company's mines, and £25,000 was coffee from Muansa and Bukoba. Ground-nuts, beeswax, cotton, rubber, dairy produce, and rice are other increasing exports, but the principal trade is in skins and hides. According to recent estimates there are about one million head of cattle in Muansa, Bukoba, Urundi, and Ruanda, to which must be added considerable quantities of sheep and goats. Cowhides are exported to the value of about £120,000 per annum, which is more than half of the total exports of hides.

The herds of cattle, unless affected by disease, will increase rapidly in numbers. Complaints of the unsatisfactory preparation of the skins are, however, numerous. The natives clean them badly, let them lie around, and thereby spoil them. In order to avoid this, an important European firm of skin and hide dealers was urged by the Government to open a factory in one of the principal skin markets in Usukuma, with a view to buy and prepare hides on the spot. The principal importer of cowhides from the German sphere of Lake Victoria is Germany, whereas most of the goatskins go to the United States.

The economic situation of the Lake Victoria region has recently been greatly improved by the establish-

ment under Government auspices of certain determined market places on the southern shore of Speke Bay, which has resulted in these becoming important trading centres. They are Kayense, in Usukuma; Janguze, in Ssima; Jasikungu, in Magu; and Urima, in Nassa. Kayense has grown rapidly since 1910; eleven Indian and Arab firms have been established and do a trade in cotton and other manufactured goods, which are acquired by the natives in exchange for their produce, consisting chiefly of rice, groundnuts, skins, and butter. It is impossible to calculate the number of Suaheli dealers who trade either independently or for other firms. Communication with Muansa, the capital of the district, is maintained either overland or by means of dhows on the lake.

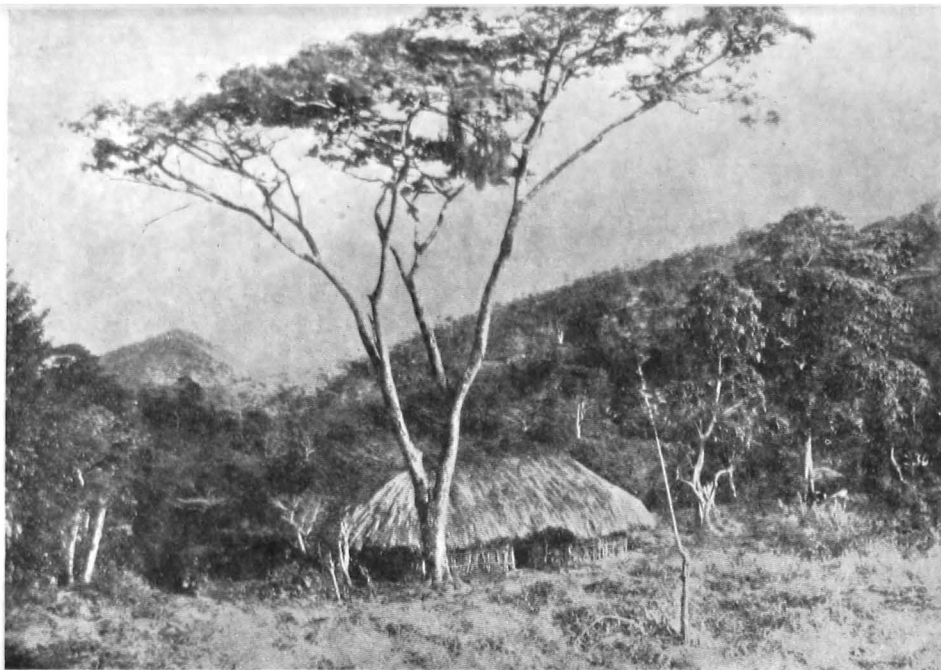


PLATE I.

TYPICAL SCENERY IN EAST AFRICA.



SCENERY NEAR DAR-ES-SALAAM.



DAR-ES-SALAAM.



VIEW OF DAR-ES-SALAAM.

PLATE 5.



DISCHARGING AT DAR-ES-SALAAM.

PLATE 6.



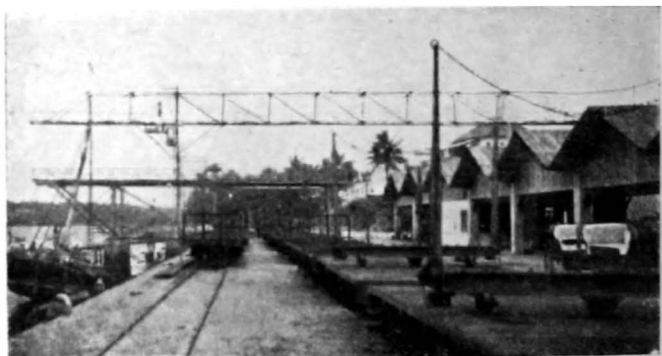
DAR-ES-SALAAM HARBOUR.

PLATE 7.



ROAD IN DAR-ES-SALAAM.

PLATE 8.



DAR-ES-SALAAM HARBOUR.

PLATE 9.



GOVERNMENT HOUSE, DAR-ES-SALAAM.

PLATE 10.



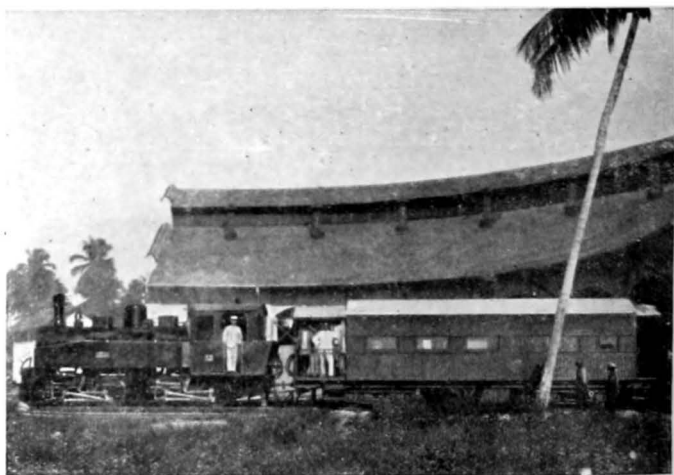
GOVERNMENT HOUSE.

PLATE 11.



RAILWAY STATION AT DAR-ES-SALAAM

PLATE 12.



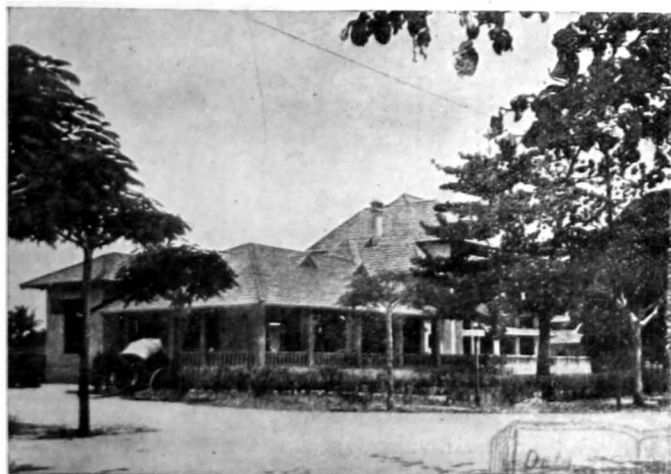
ENGINE ON THE CENTRAL RAILWAY.

PLATE 13.



STATION AT DAR-ES-SALAAM.

PLATE 14.



GERMAN CLUB AT DAR-ES-SALAAM.

PLATE 16.



DAR-ES-SALAAM.

PLATE 16.



TYPICAL VEGETATION NEAR THE COAST.

PLATE 17.



WISSMANN MONUMENT AT
DAR-ES-SALAAM.

PLATE 18.



GIANT FIG TREE NEAR THE COAST.

PLATE 19.



ROAD IN BAGAMOYO.

PLATE 20.



IVORY CARAVAN.



VIEW OF TANGA.



A STREET IN TANGA.



TANGA STATION.

PLATE 24.



A STREET IN TANGA.

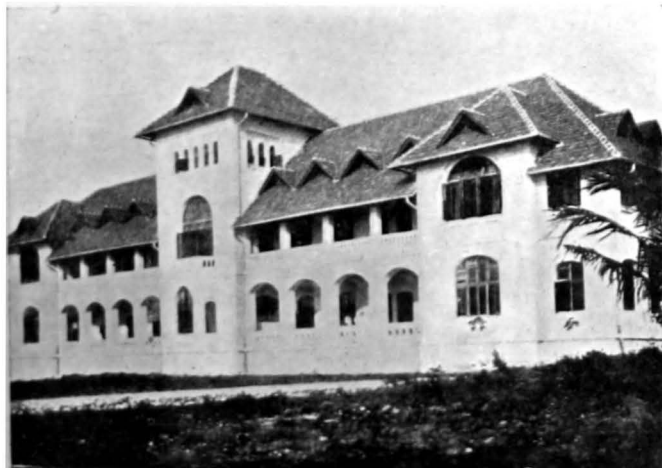
PLATE 25.



MARKET PLACE IN TANGA.



GERMAN CLUB AT TANGA.



HOSPITAL AT TANGA.

PLATE 28.



LIGHTHOUSE AND SANATORIUM, TANGA.

PLATE 29.



MANAGER'S HOUSE ON THE LEWA PLANTATION IN THE TANGA DISTRICT.



PANORAMA OF PANGANI.

PLATE 31.



A STREET IN PANGANI.

PLATE 32.



GRASS COUNTRY UP THE PANGANI RIVER, IN THE INTERIOR OF
USAMBARA.



FALLS OF THE PANGANI RIVER, NEAR HALE.



UPPER REACHES OF THE PANGANI RIVER.

PLATE 35.



VIEW OF ARUSHA, WITH MOUNT MERU IN THE DISTANCE.

PLATE 36.



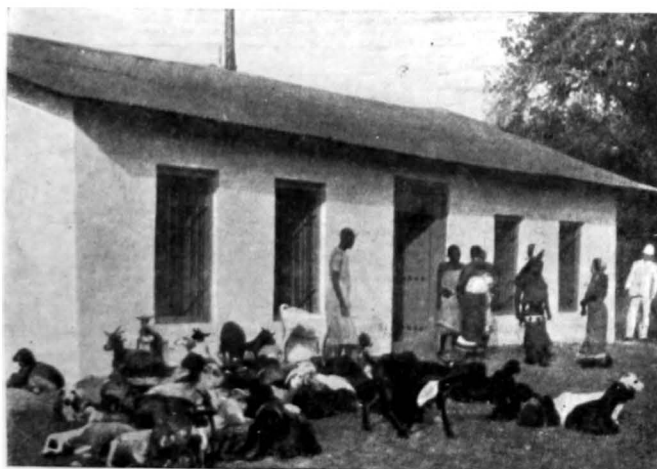
MERU MOUNTAIN, SEEN FROM A HEIGHT OF 3,000 METRES.

PLATE 37.



A FARMHOUSE ON MERU MOUNTAIN.

PLATE 38.



GOATS AND SHEEP.

PLATE 39.

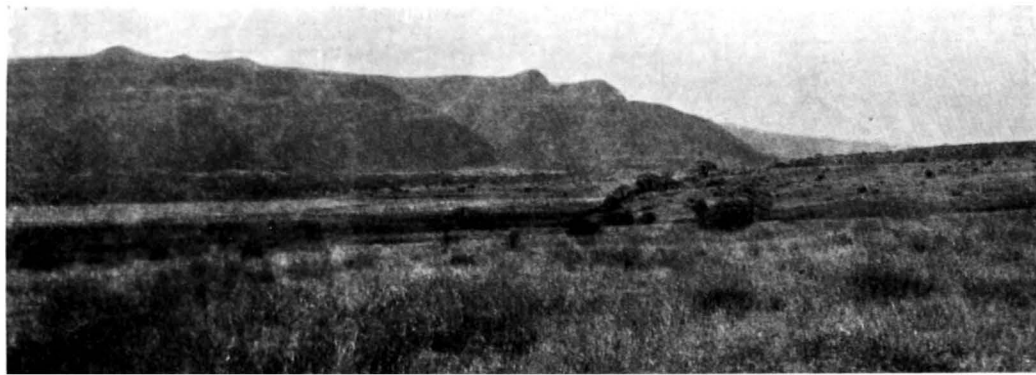


THE VOLCANO OF OLDONYO L'ENGAI FROM THE EAST

PLATE 40.



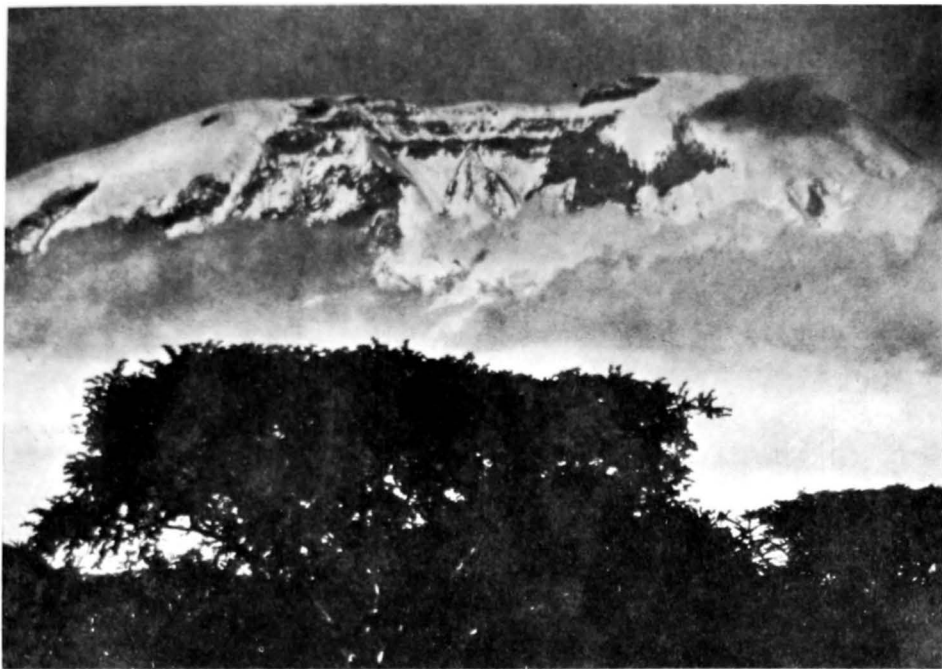
UGUENO WOMEN IN NORTH PARE.



THE "BRUCHSTUFE."



KILIMANJARO MOUNTAINS.



MOUNT KIBO, THE SUMMIT OF THE KILIMANJARO MOUNTAINS, 6,000 METRES HIGH.

PLATE 44.



MOUNT KIBO.

PLATE 45.



TOP OF THE KIBO GLACIER.



MOUNT MAWENSI IN THE KILIMANJARO MOUNTAINS, SEEN FROM
A HEIGHT OF 4,300 METRES.



FOREST ON THE SOUTHERN KILIMANJARO MOUNTAINS,
2,600 METRES HIGH.

PLATE 48.



VEGETATION ON THE KILIMANJARO MOUNTAINS.

PLATE 49.



ALPINE VEGETATION (*SENECIO JOHNSTONI*) ON THE SOUTHERN
KILIMANJARO MOUNTAINS, 3,500 METRES HIGH.



HUTS IN MOSCHI, KILIMANJARO.



MAREALE, CHIEF OF MARANGU, KILIMANJARO.



VIEW OF EAST USAMBARA FROM THE MOUNTAINS.

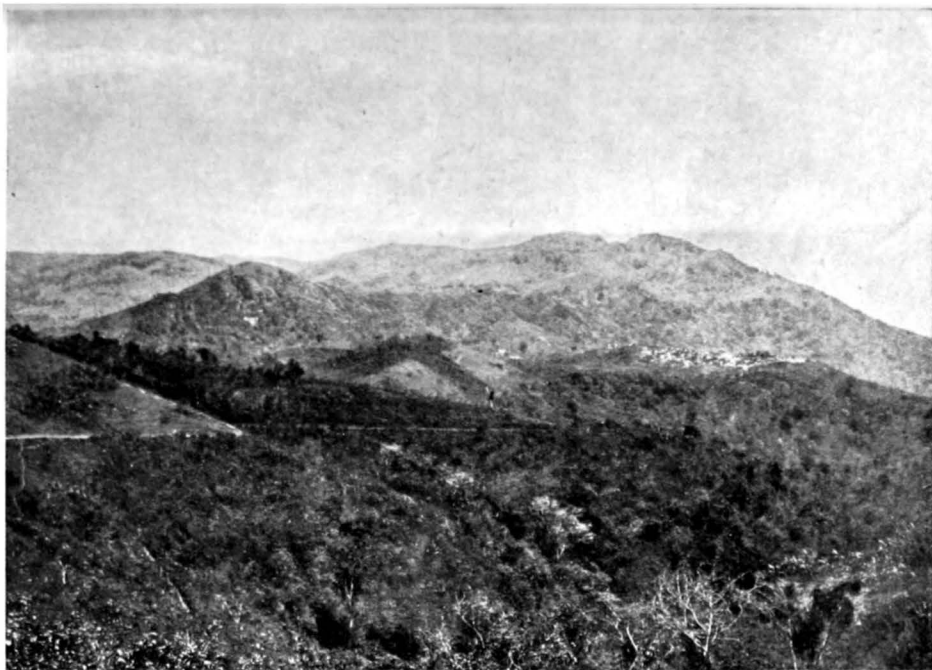


PLATE 53.

SCENERY IN THE USAMBARA MOUNTAINS.

PLATE 54.

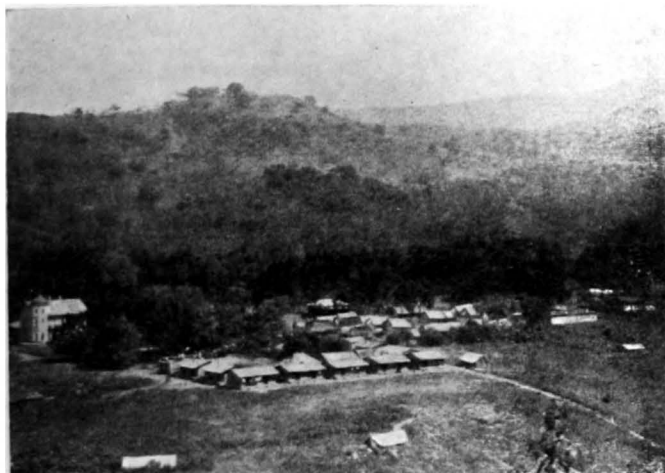


**MOUNTAIN SCENERY IN WEST USAMBARA, WITH THE WASCHAMBAA
VILLAGE OF BUMBULI.**

PLATE 55.



**VILLAGE OF GALE, BELONGING TO THE WASCHAMBAA, WEST
USAMBARA.**



VIEW OF WILHELMSTAL.



FOREST ON THE ROAD FROM KWAMKORO TO AMANI IN
EAST USAMBARA.

PLATE 58.



NATIVES SELLING PROVISIONS ON THE USAMBARA RAILWAY

PLATE 59.



COFFEE PLANTATION NEAR UGUELO, EAST USAMBARA.

PLATE 60.



FACTORY ON A COFFEE PLANTATION.

PLATE 61.



THE UNION COFFEE PLANTATION IN EAST USAMBARA.

PLATE 62.



FLOWERING COFFEE PLANT.

PLATE 63.



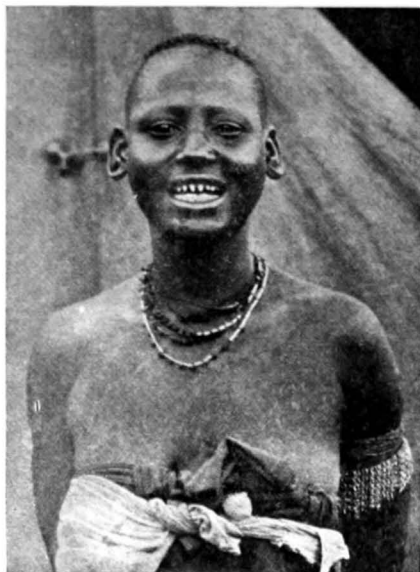
COFFEE PLANT WITH FRUIT.

PLATE 64.

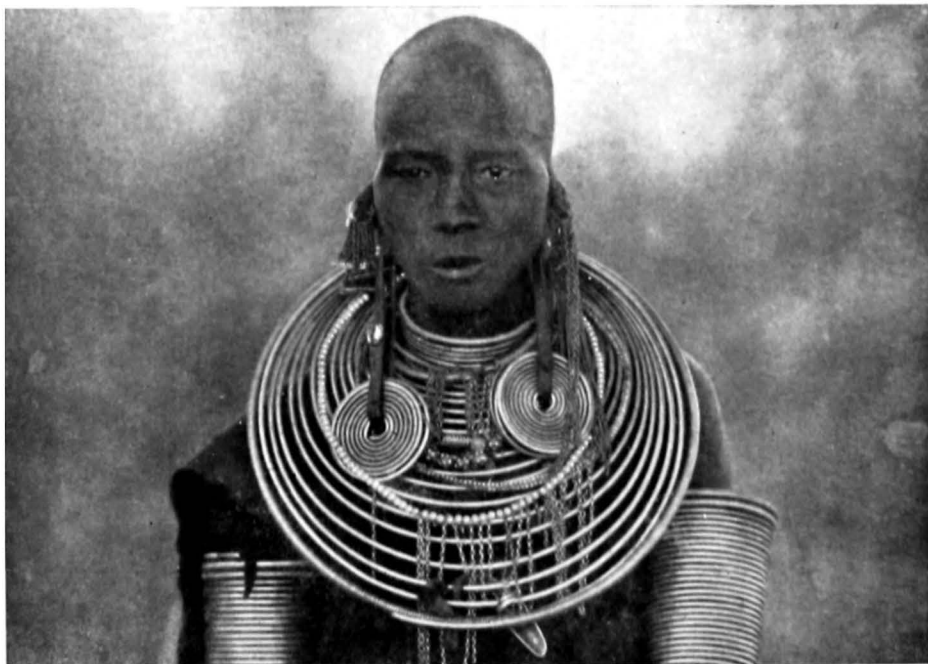


A MASAI NATIVE

PLATE 65.



UKAMBA GIRL IN NORTH USAMBARA.



A MASAI WOMAN.

PLATE 67.



A MASAI WARRIOR.

PLATE 68.



A MASAI WARRIOR.

PLATE 69.



A MASAI WARRIOR.

PLATE 70.



MASAI WOMEN.

PLATE 71.



A MASAI CARAVAN.

PLATE 72.



PAPAYA TREE.

PLATE 73.



MASAI HUT.

PLATE 74.

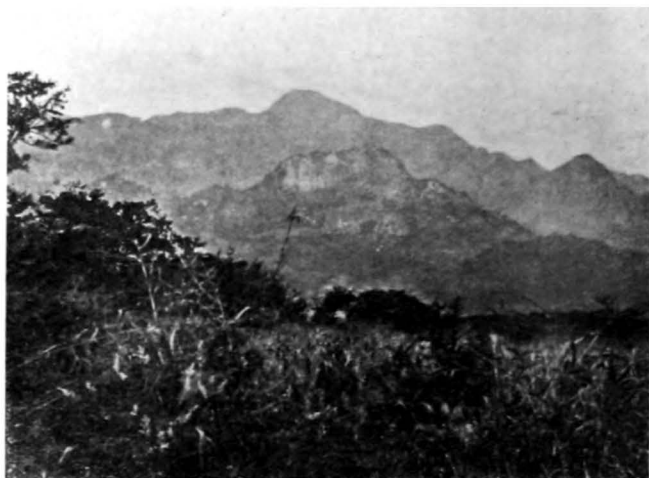


SCENERY ON THE MUAVU MOUNTAIN, UNGURU.



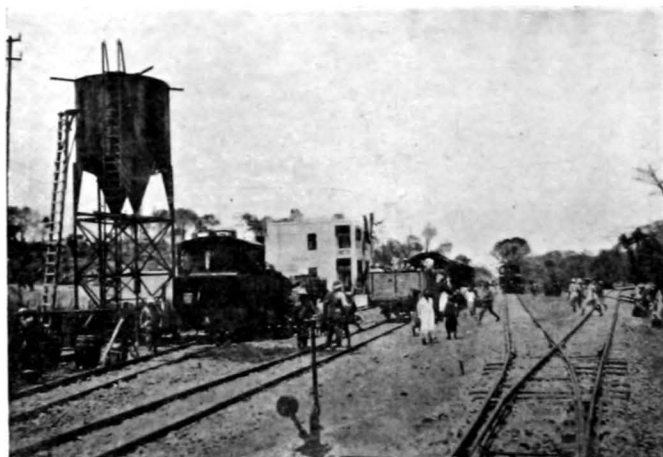
VIEW OF THE ULUGURU MOUNTAINS.

PLATE 76.



NORTHERN SLOPES OF THE ULUGURU MOUNTAINS NEAR MROGORO.

PLATE 77.



NEERENGERE STATION, ON THE MROGORO RAILWAY.



PLATE 78.

A NATIVE STORE AT MROGORO.

PLATE 79.



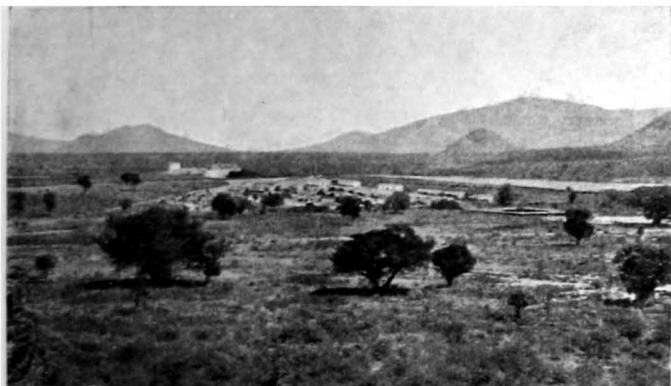
KINGO MKUBWA, CHIEF OF MROGORO.

PLATE 80.



FOREST ON THE SOUTHERN ULUGURU MOUNTAINS.

PLATE 81.



MPAPUA STATION, BEHIND THE USSAGARA MOUNTAINS.

PLATE 82.



OSTRICHES.

PLATE 83.



THE LOWER RUFIFI RIVER

PLATE 84.



ON THE RUFIFI RIVER.



UMBRELLA ACACIA.

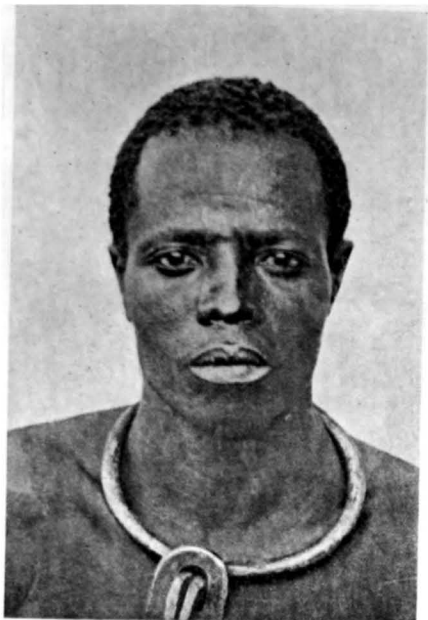


THE MILITARY STATION OF IRINGA, UHEHE.



UIHHE NATIVES.

[PLATE 88.



NIOTINGOMBE, CHIEF OF UHEHE.]

PLATE 89.



UGOGO NATIVES.

PLATE 90.

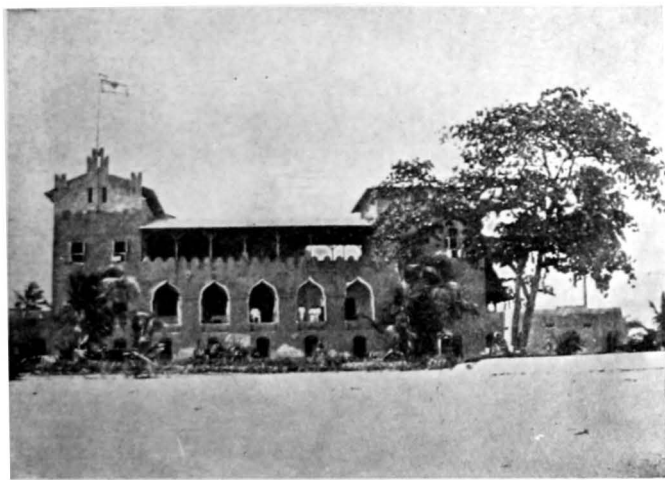


THORNBUSH IN MARENGA MKALI, UGOGO.

PLATE 91.



NATIVE BLACKSMITHS.



STATION AT KILWA.



COTTON-FIELD NEAR KILWA.

PLATE 94.



STEAM PLOUGH ON A COTTON-FIELD.

PLATE 95.



CLEANING COTTON.



A COTTON-FIELD.



BRINGING IN COTTON.



ON THE SHORE AT LINDI, THE MOST IMPORTANT HARBOUR ON THE SOUTHERN COAST OF GERMAN EAST AFRICA.



PANORAMA OF LINDI.

PLATE 100.



WORKING ON A RUBBER PLANTATION.

PLATE 101.



RUBBER PLANTATION (*MANIHOT GLAZIOVII*) NEAR LINDI



TAPPING A RUBBER TREE.



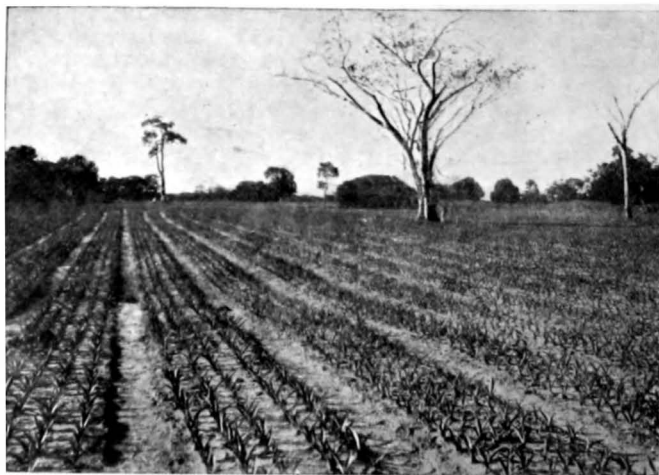
RUBBER CARAVAN.

PLATE 101.



A SISAL PLANTATION.

PLATE 105.



NEWLY PLANTED SISAL NEAR KIDUNI, LINDI.

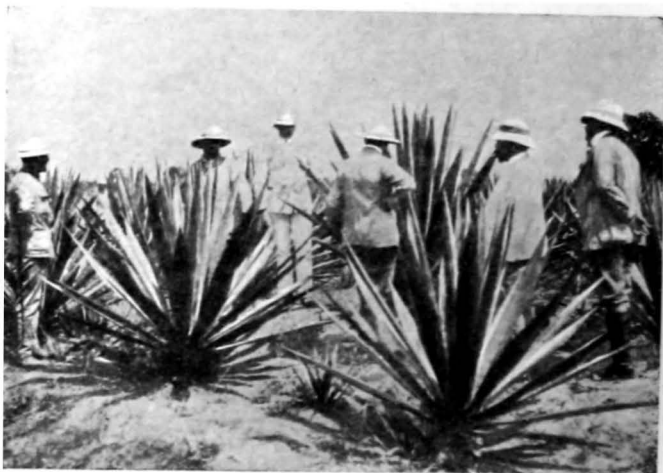


A SISAL PLANTATION.



A SISAL PLANTATION : SEPARATING THE FIBRE.

PLATE 108.



SISAL PLANTS.

PLATE 109.



NATIVE HUT, WITH STOREHOUSE ON FILES.

PLATE 110.



WASHING HEMP.

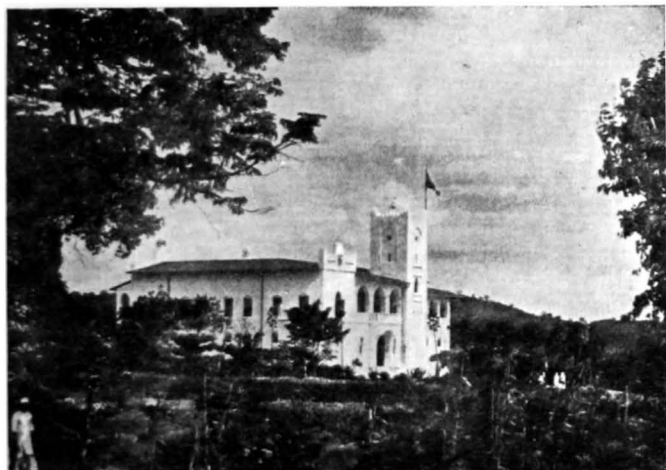
PLATE 111.



BINDING BAST.



PLATE 113.



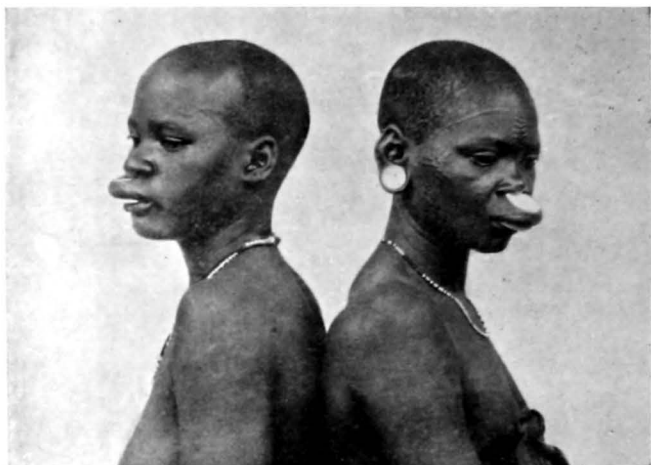
STATION AT MIKINDANI.

PLATE 114



THICK BUSH ON THE MAKONDE PLATEAU.

PLATE 115.



MAKONDE GIRLS WITH LIP ORNAMENTS.

PLATE 116.



WOMEN MAKING POTTERY.

PLATE 117.



MAKONDE WOMAN.

PLATE 118.



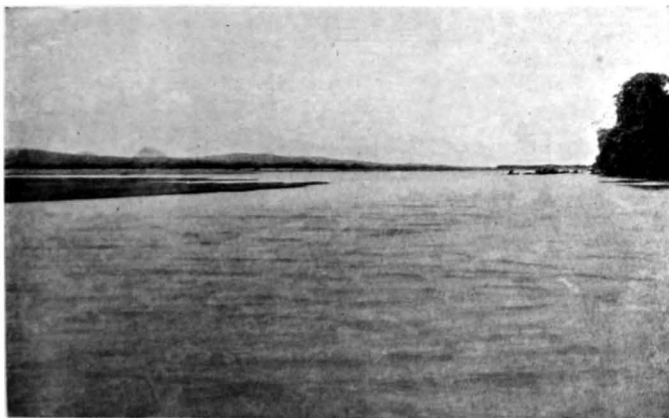
WADSCHAGGA NATIVES.



SCENERY ON THE RIVER ROVUMA, IN THE SOUTH.



ON THE ROVUMA RIVER.



VIEW ON THE LOWER ROVUMA RIVER.

PLATE 122.



VIEW IN SOUTH UNGONI.

PLATE 123.



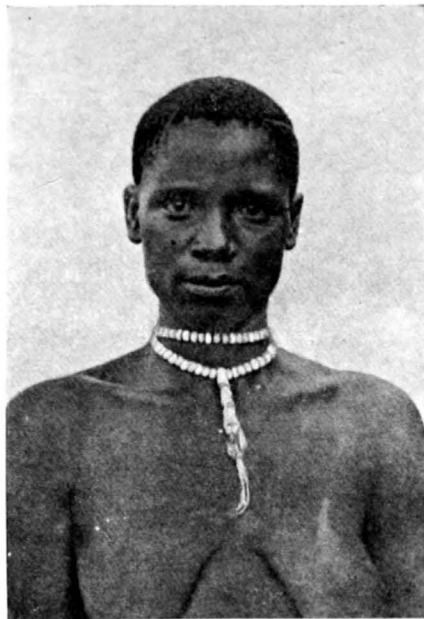
UNGONI NATIVES COLLECTING SORGHUM, KUMBUTI.

PLATE 124.



UNGONI WOMAN.

PLATE 125.



UKONDE WOMAN.

PLATE 126.



UMAHASSI VILLAGE NEAR BULONGWA IN THE LIVINGSTONE MOUNTAINS.

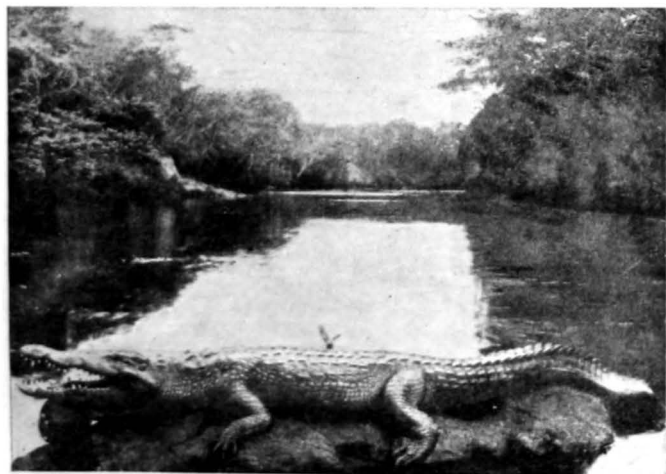
PLATE 127.



VIEW IN THE LIVINGSTONE MOUNTAINS.



NORTHERN END OF LAKE NYASSA NEAR ALT-LANGENBURG, WITH
THE STEAMER "HERMANN V. WISSMANN."



A CROCODILE.

PLATE 130.



THE SCHUGULI FALLS OF THE KILOMBERO-ULANGA RIVER.

PLATE 131.



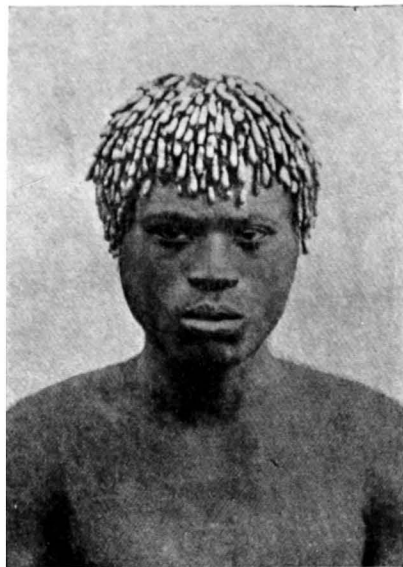
A CAPTURED HIPPOPOTAMUS.

PLATE 132.



KIWANGA, CHIEF OF UBENA.

PLATE 133.



UKINGA YOUTH FROM NYASSALAND
MOUNTAINS.

PLATE 134.



THE SOUTH-EAST CORNER OF LAKE RUKWA, NEAR THE MOUTH OF
THE LUIKA RIVER.

PLATE 135.



UNJIKA VILLAGE IN RUKWA.



STALACTITE WALL FORMATION, SONGWE RIVER, RUKWA DISTRICT.



BISMARCKBURG ON THE SOUTH-EAST SHORE OF LAKE TANGANYIKA.

PLATE 138.



GIRLS FROM UJJI.

PLATE 139.



OIL-PALMS NORTH OF UJJI.

PLATE 140.



THE NGOMAITALE FALLS OF THE MALAGARAZI RIVER.

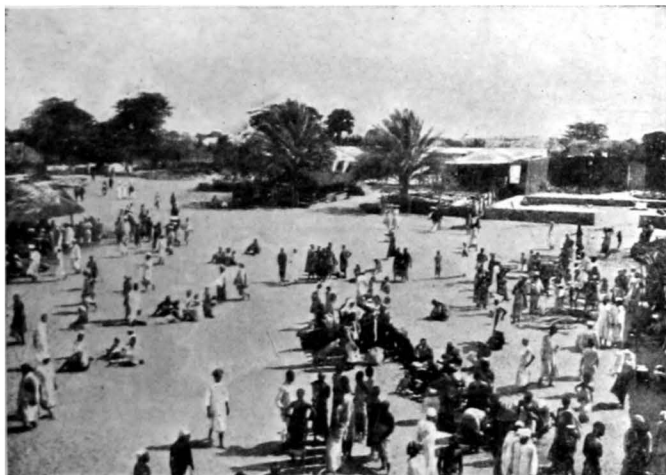
PLATE 141.



BREAD-FRUIT TREE.



ADMINISTRATION OFFICES AT TABORA.



VIEW OF TABORA.



MARKET AT TABORA.

PLATE 146.



A VIEW IN TABORA.

PLATE 146.



VIEW OF TABORA.



UNYAMWEZI STEPPE.

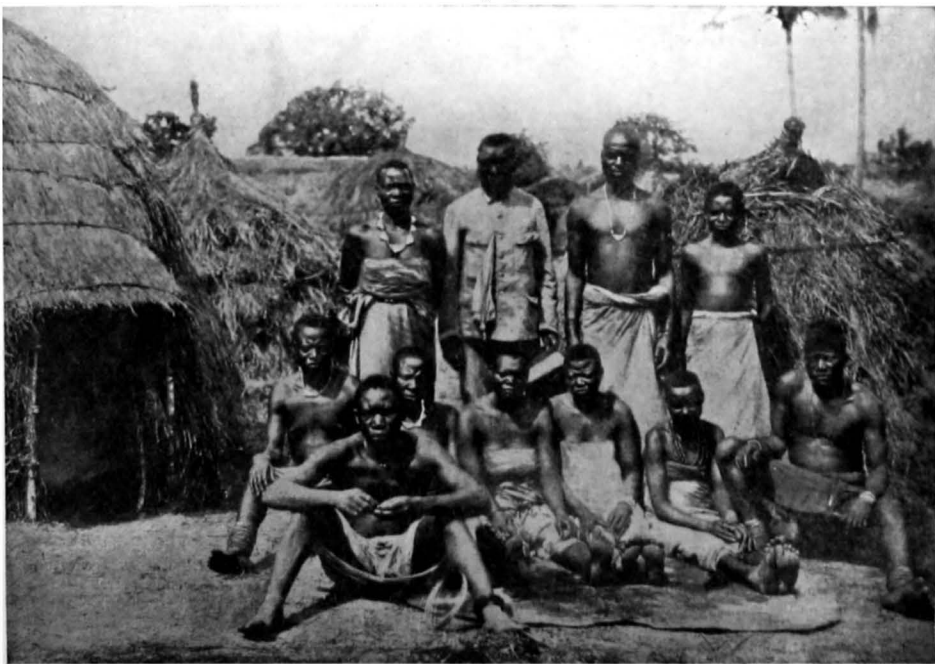


PLATE 148.

UNYAMWEZI AND USSUKUMA NATIVES.



UNYAMWEZI HUT.



A VIEW IN UNYAMWEZI.



A VIEW NEAR USUMBURA.

PLATE 152.



MARKET AT USUMBURA, NORTH TANGANYIKA.

PLATE 153.



ELEPHANT HUNTING.

PLATE 154.



KISSENJI, ON THE NORTH-EAST SHORE OF LAKE KIVU.

PLATE 155.



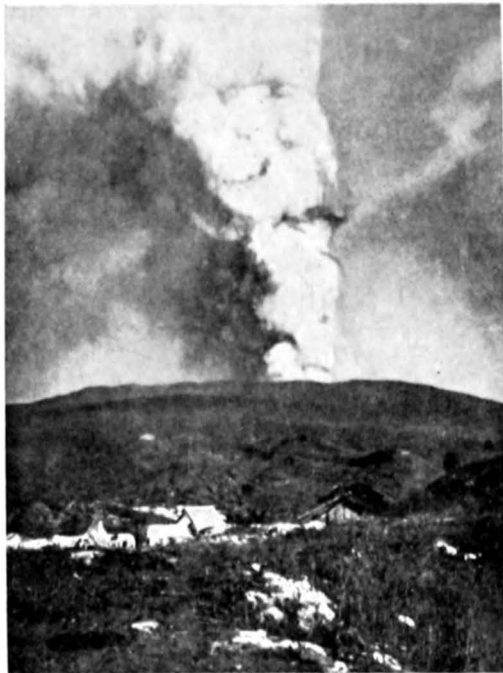
SCENERY NEAR NGOMA IN NORTH-WEST RUANDA, WITH LAKE KIVU
IN THE BACKGROUND.

PLATE 156.



FOREST ON THE ISLAND OF KWIDSCHWI IN
LAKE KIVU.

PLATE 157.



ERUPTION OF NAMLAGIRA (NORTH RUANDA)
IN 1907.

PLATE 158.



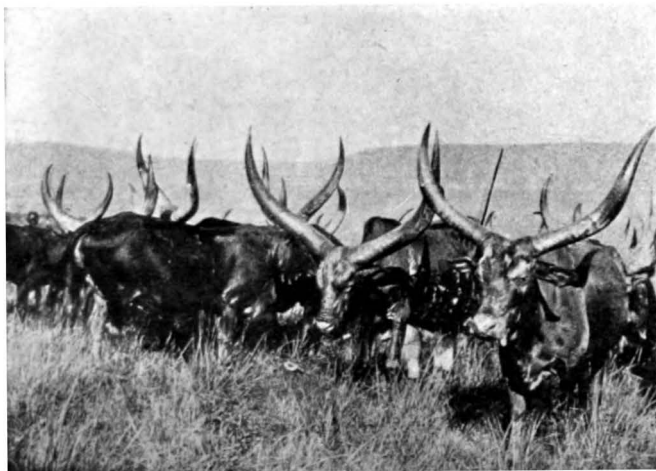
VOLCANO OF SABINJO IN NORTH RUANDA.

PLATE 159.



UHUMA IN UPPER RUANDA: REMOVING A HUT.

PLATE 160.



CATTLE WITH GIGANTIC HORNS AT RUANDA.

PLATE 161.



UHUMA NATIVES FROM GRENZ, BETWEEN MPORORO AND RUANDA.

PLATE 162.

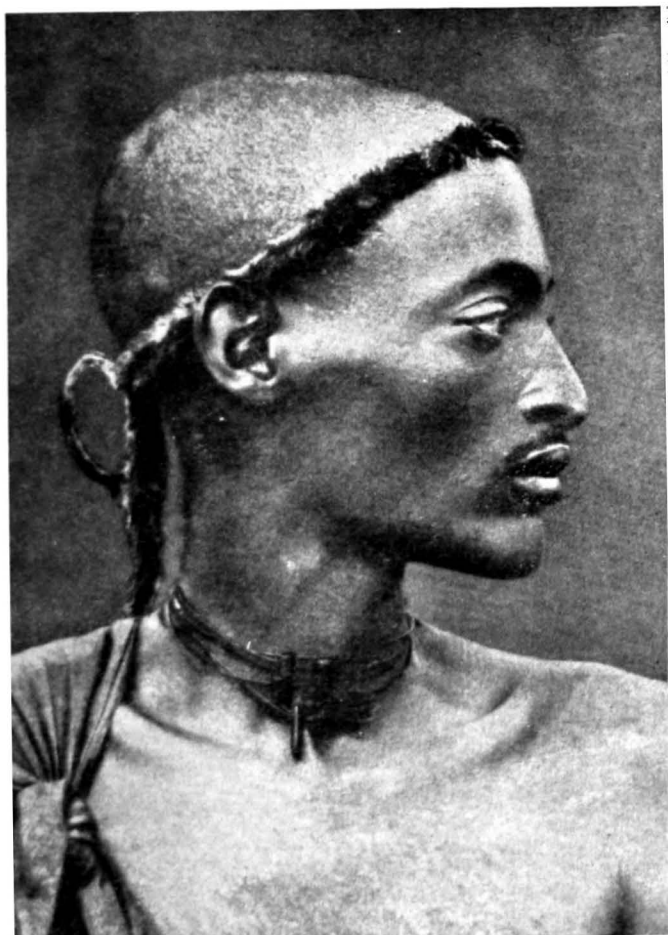


UHUMA CHIEFS AT MPORORO.

PLATE 163.



MWULE TREE.



MHIMA-SULTAN KISSILEROBO OF MPORORO IN NORTHERN GERMAN EAST AFRICA. HIS HEAD IS OF THE PUREST HAMITIC TYPE, AND CLOSELY RESEMBLES THE ANCIENT EGYPTIAN.

PLATE 165.



REEDS IN THE KAGERA RIVER

PLATE 166.



NATIVES DANCING AT UHEIA, NEAR NYANGOME, IN THE BUKOBA DISTRICT.



VIEW OF BUKOBA.

PLATE 168.



WESTERN SIDE OF VICTORIA NYANZA WITH THE ISLAND OF RUNENKE.

PLATE 169.



**UHEIA NATIVES ON THE WESTERN SHORE OF VICTORIA
NYANZA.**

PLATE 170.



SMELTING BY THE UHEIAS.

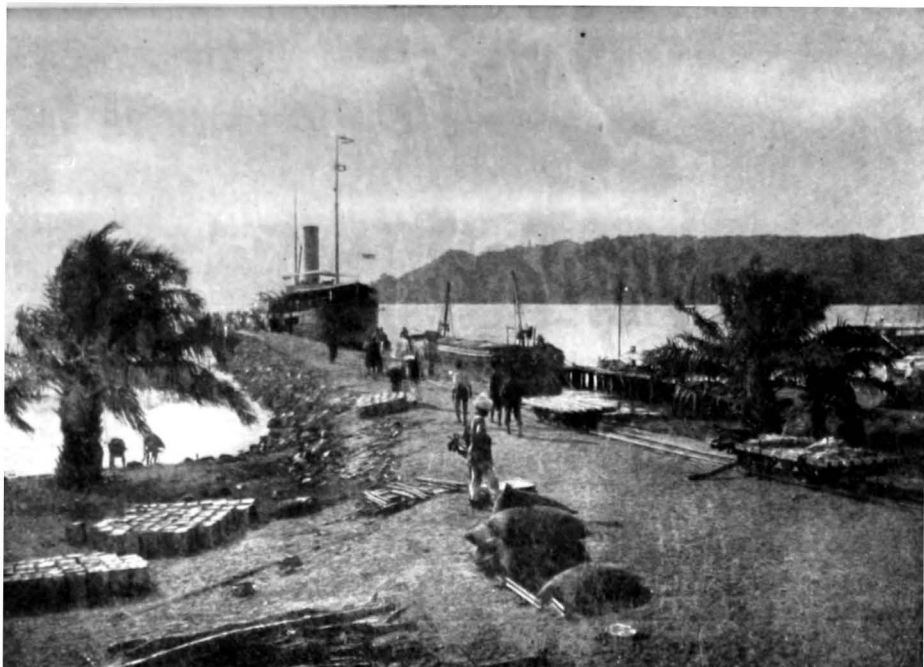
PLATE 171.



FOREST ON THE ISLAND OF UKEREWE, VICTORIA NYANZA.

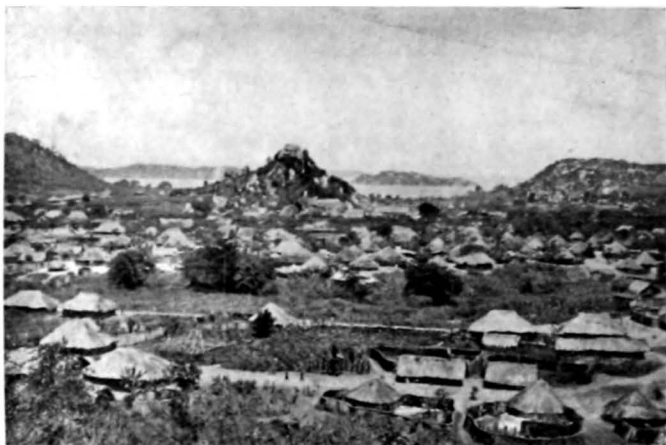


MUANSA AND VICTORIA NYANZA.



THE HARBOUR AT MUANSA.

PLATE 174.

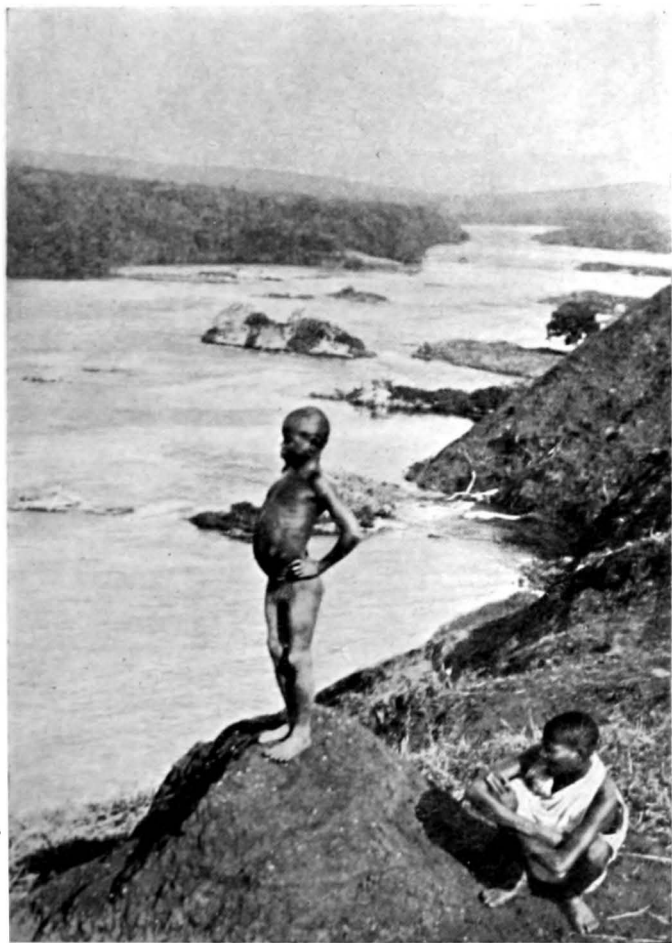


VIEW OF MUANSA.

PLATE 175.



UGAIA NATIVES IN MOHURRU DISTRICT OF SHIRATI.



THE NILE HERE BEGINS ITS 4,000 MILE JOURNEY FROM VICTORIA
NYANZA TO THE SEA.

PLATE 177.

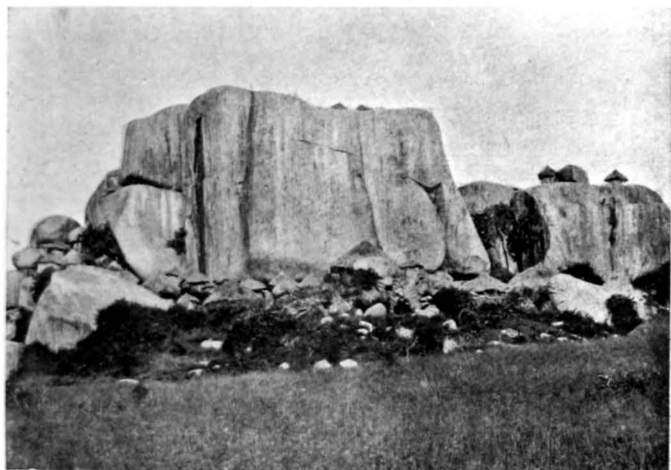


RIPON FALLS OF THE NILE.

PLATE 178.



A LEOPARD (PHOTOGRAPHED AT MIDNIGHT).



GRANITE CLIFF, AND VILLAGE OF THE URURI, ON THE MARA RIVER.



RHINOCEROS BATHING.



A VILLAGE IN USSUKUMA.



USEGUHA HUTS, WITH MAIZE-FIELD.



UNYAKYUSSA HOUSE IN THE KONDE LOWLANDS.

PLATE 184.



NATIVE CANOE AT THE MOUTH OF THE MSIMBASI RIVER.

PLATE 185.



MAKUA FARM NEAR MASSASSI.

PLATE 186.



UKISSI CHIEF.

PLATE 187.



A MGOGO NATIVE.

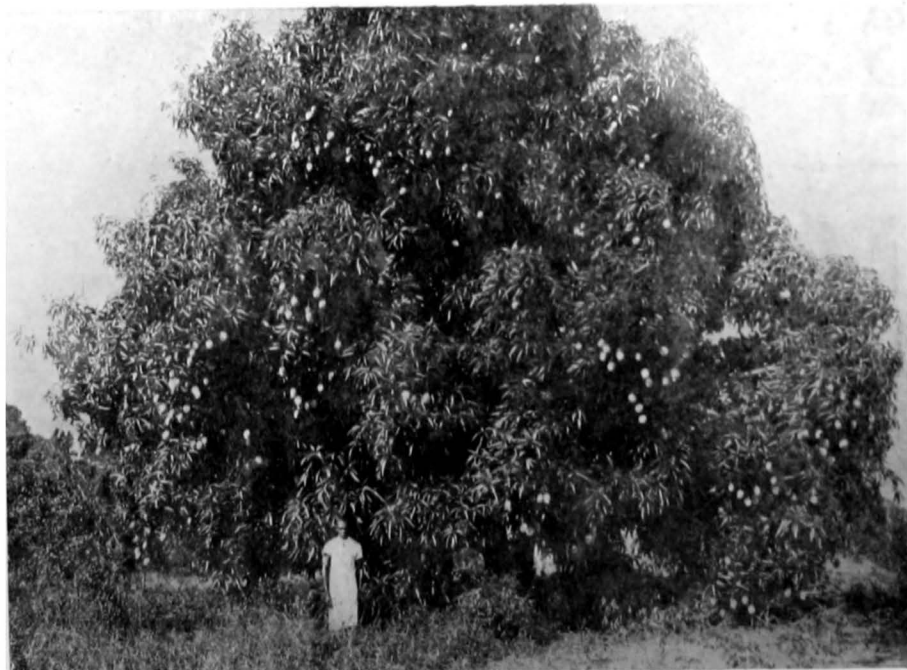


PALM FESTIVAL AT BAMUNA.



PLATE 189.

MAKING A ROAD,



A MANGO TREE.

PLATE 191.



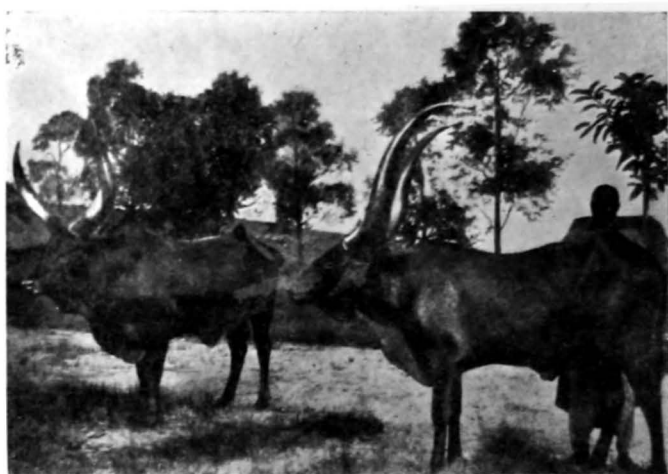
YOUNG COCOANUT PLANTATION.

PLATE 192.



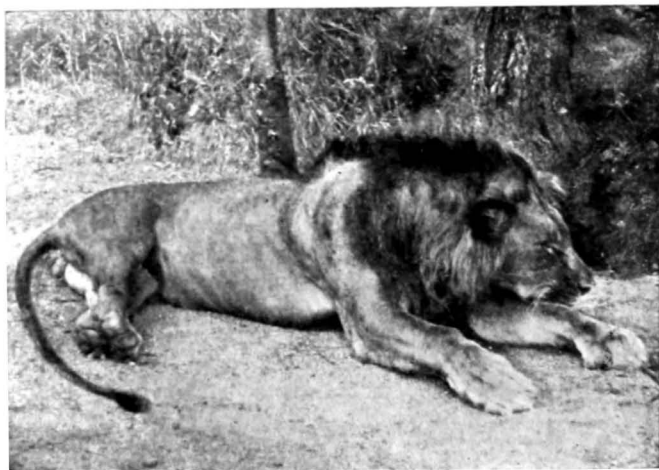
OPENING COCOANUTS.

PLATE 193.



CATTLE.

PLATE 194.



A LION.



CARRIERS ON THE MARCH.



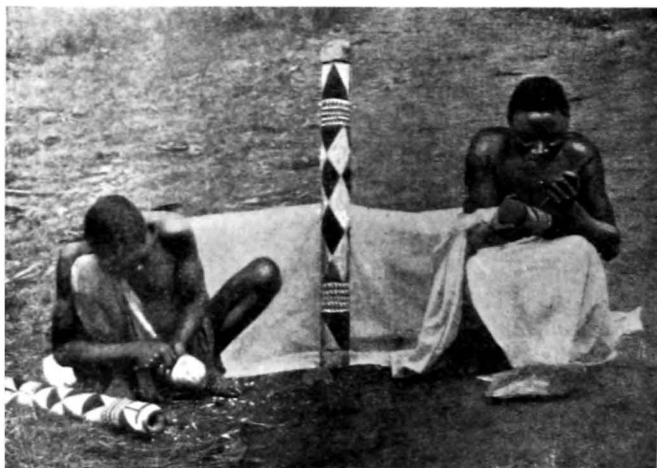
CARAVAN RESTING.

PLATE 197.



THE ENGLISH MISSION STATION OF MAGILA, NEAR BONDEI.

PLATE 198.



NATIVES WOOD-CARVING.

PLATE 199.



SUGAR CANE.

[PLATE 200.



BLACK MILLET.

PLATE 201.



COCOANUT PALM.

PLATE 202.



BORASSUS PALM.

PLATE 203.



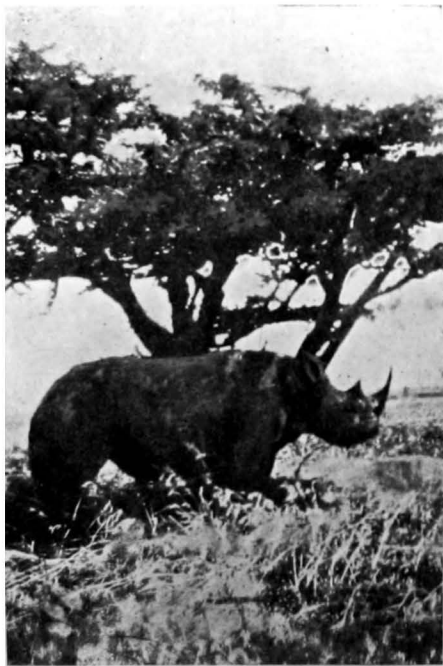
USAMBARA CEDAR.

PLATE 204.



MANGROVE.

PLATE 205.



A RHINOCEROS.

PLATE 206.



RAPHIA PALM.



UTUSSI NATIVES.

PLATE 208.

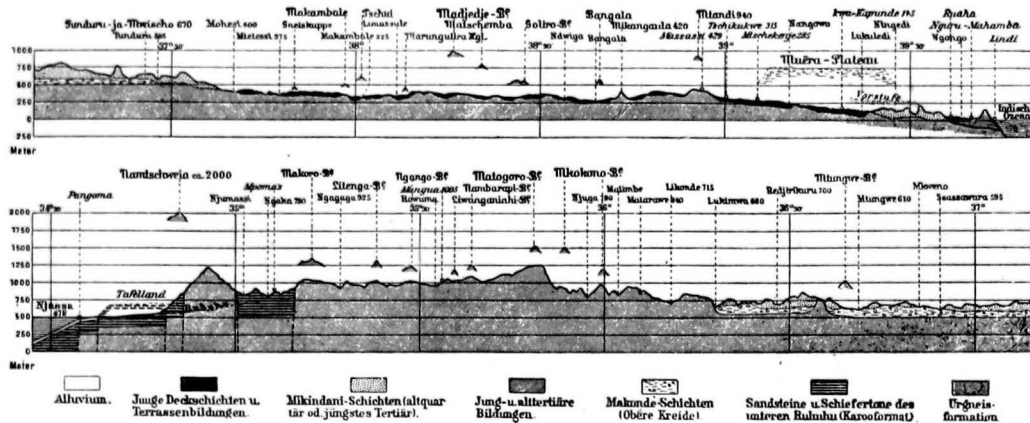


MOUNTAIN SCENERY IN IRAKU, WITH TEMBE VILLAGES.

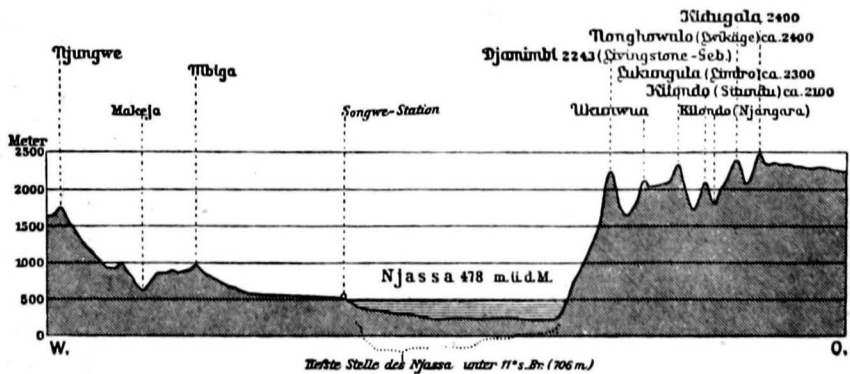
PLATE 209.



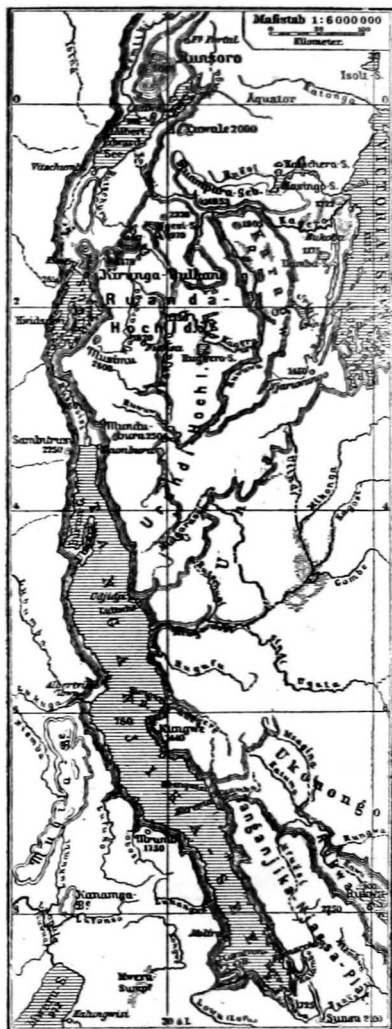
HUMP-BACKED CATTLE.



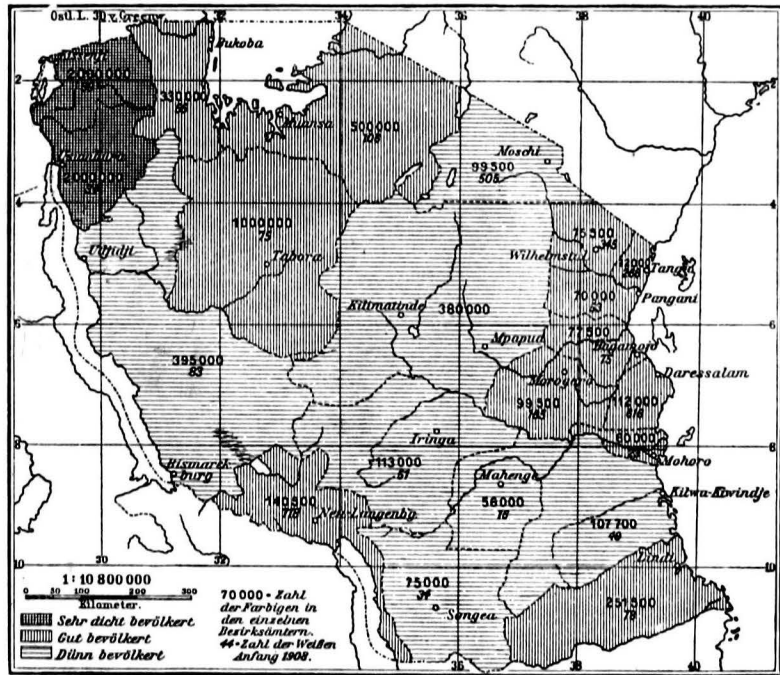
GEOLOGICAL PROFILE BETWEEN LINDI AND LAKE NYASSA.



PROFILE OF LAKE NYASSA.



LAKE TANGANYIKA AND VICTORIA NYANZA.



PLAN SHOWING THE DENSITY OF THE POPULATION.

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During the German Occupation, 1884-1914

(First Edition, December, 1915.)

By ALBERT F. CALVERT.

105 pp. With 230 Illustrations and Maps, and 2 Coloured Plates.
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