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The Sudan of To-day

CENTRAL ECONOMIC BOARD,
SUDAN GOVERNMENT, KHARTOUM.

PUBLISHED AT
5 NORTHUMBERLAND AVENUE, LONDON, W.C.



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Some General Impressions.

THERE are by this time many books about the Sudan. Not long ago the adventurous reader, decoyed perchance by the bright narrative of Steevens's "With Kitchener to Khartoum," would have found that his next step served only to plunge him into a morass of Blue-books. In these days, however, he may roam at will amongst Gossiping Guides or Hunting Anecdotes. The Sudan is now rediscovered almost every year. Writers upon the Sudan are invariably impressed by the great size of the country, astonished at the metamorphosis of its condition in the few short years since Dervish times, and ecstatic over the enthusiasm of its handful of officials.

There is, indeed, virtue in the bald statement which prefaces most accounts of the country, that the Sudan covers an area of 1,000,000 square miles, that it is as large as British India or two-thirds the size of China, or that some of its fourteen provinces are as large as or larger than the United Kingdom.

Many will perhaps recall the feeling on their first visit to the Sudan, that at some point on the southward voyage from Assuan to Wadi Halfa they have left Europe behind and entered Africa. Egypt, with its European invasion of tourists and its swarming millions of natives, seems far away. As one passes through the waste of jagged hills and empty desert that lies between Halfa and Abu Hamed, one can hardly help feeling that this is one of the forbidden places. There is no sign of life but a vulture in the sky, no vestige of vegetation. This might be the abomination of desolation spoken of by the prophet.

At the end of such a journey Khartoum, with its civilised amenities, comes upon the traveller as a surprise, almost as a shock. The city is somewhat of a problem also to the man of affairs and the scrutinizer of facts and figures. He will ask himself how this thing happened; how a fine city has been evolved out of a country of stones and sand, where nature is seen in her most niggardly mood, and apparently goats are pastured on pebbles. His economic mind may perhaps regard Khartoum with suspicion as a mere *tour de force,* and wonder where the money comes from. But he must push on southwards if he wishes to find the answer to his questions, for at Khartoum the traveller is still only upon the threshold of the true Sudan. The fertile

territories which are the basis of Khartoum's foundations, and which offer such promise of a future, stretch to the south and east and west. The northern deserts are no more than the dusty path which leads from the outer to the inner gate of the Sudan.

Quite another Africa soon reveals itself. Sand gives place to cotton soil, Arab and camel disappear, and the traveller enters the country of the blacks, where the primitive tribesman lives the life of 5,000 years ago, tending his herds in the smoke of dung fires and smearing his body with dung and clay to keep away the flies. By day the eye finds relief in the cool green of trees and grass; at night the conflagrations of leaping prairie fires light the heavens.

Khartoum stands at the apex of the great Gezira Plain, where Providence has already done half of man's work for him, and cleared and levelled the millions of acres that some day should be white with cotton. Even this vast stretch makes only half the tale of the land where cotton can be grown, and takes no account of the alluvial plains of Kassala and Tokar, or the districts through which flow the rivers Atbara, Rahad, and Dinder.

The tourist and casual visitor is rightly impressed by such outward and visible signs of progress as railroads and bridges, fine houses and Government buildings, modern harbours, and other inventions of civilisation. The entire economic condition of the Sudan has indeed been changed out of all recognition, but what may be called the mechanical apparatus of the Government is in no way disproportionate to its needs. It is still under-equipped and its few modern instruments, efficient and striking though they be, are far less than the minimum required. They are indispensable, and no less useful, if some of them claim also to be ornamental. Every Government must bedeck itself with certain trappings for the enlightenment of the ignorant. But to be rightly understood these works should be seen after, and not before, some knowledge has been gained of the new spirit of happiness and content which is being inspired amongst the people by the men at work in the provinces. This is the true measure of the success of the administration.

Financial Record.

The Sudan now Paying its Own Way and Prospering.

In 1898, the year of the re-occupation, the revenue of the Sudan, apart from help from Egypt, was £E35,000; last year it was £E1,429,000; this year no less than £E1,644,000, and the Egyptian contribution has been abolished. The Sudan is now solvent, paying its way and prospering—an amazing record of rapid progress for a great tropical dependency.

The growth of the revenue may be seen from the following figures: —

	£E*		£E*
1898 - -	35,000	1906 - -	818,000
1899 - -	127,000	1907 - -	976,000
1900 - -	157,000	1908 - -	979,000
1901 - -	242,000	1909 - -	1,043,000
1902 - -	270,000	1910 - -	1,171,000
1903 - -	463,000	1911 - -	1,311,000
1904 - -	576,000	1912 - -	1,429,000
1905 - -	665,000	1913 - -	1,644,000

*£ Egyptian 1=£1 os. 6d. sterling.

The recuperative power of the country began to assert itself immediately the checks to its productive capacity were removed. The substitution of tranquillity and justice, and a light and equitable system of taxation for the predatory and destructive despotism of the past, has enabled the rehabilitation of the finances to be accomplished in a far shorter period than was ever anticipated at the time when the Sudan was recovered from Dervish rule. It was clearly impossible for any Government to maintain itself on the proceeds of the administration of a country in the state in which the Sudan was found in 1898, and until 1913 Egypt made an annual contribution to the Sudan. In 1899 this contribution amounted to £E439,800, and in 1900 to £E457,700; since then it has been gradually reduced, and is now abolished. In actual fact the Egyptian contribution has been much less than might be gathered from the above statistics, for the Sudan has repaid to Egypt each year a large sum as part of the cost of maintaining that portion of the Egyptian army serving in the Sudan. If this repayment is taken into account, as well as the amounts paid back to or received by Egypt in respect of Sudan trade, it is calculated that, including interest on capital expenditure, the average annual

net cost of the Sudan to Egypt since 1899 has only been about £E93,000.

The revenue may be divided into two main categories —viz., receipts from "Departments and Services," including Customs, Steamers, Posts and Telegraphs, Railways. These account for about two-thirds of the revenue. The other category is that known as "Provincial Receipts," producing about one-third of the revenue, and including the proceeds of the land tax, animal tax, tribute and royalties, &c.

The Provincial Receipts have increased from £E68,000 in 1899 to £E509,000 in 1913.

Under the category of receipts from Departments and Services, the railways are the largest source of revenue. In 1909 they yielded £E336,700, and in 1913 £E553,000. The receipts in 1913 from Customs and Posts and Telegraphs were respectively £E186,760 and £E63,200.

The British Government is so convinced of the productive capacity of the country that it has undertaken to guarantee the interest on a loan of £3,000,000 for cotton growing and other objects.

Exports have increased from about £E260,000 in 1906 to over £E1,180,000 in 1913.

The import trade has also increased in value and amounts, on an average for the last three years, to £E2,117,051 per annum. The total value of the external trade of the Sudan, on an average for the same period, is £E3,572,314 per annum. The progress has exceeded the most sanguine anticipations.

Markets by the score have come into existence, and new ones are constantly springing up as means of communication, especially by railway, improve.

It is said that El Obeid, the capital of Kordofan Province, did not possess a single inhabitant amongst its ruins at the time of the re-occupation. It is now a thriving town, the terminus of a railway, with a prosperous market and a bank, and its postal money order transactions amount to £51,000.

In Dongola Province, the Dervishes destroyed practically all the water-wheels and date trees, the principal means of subsistence of the inhabitants, but the province has now entirely recovered its prosperity, and its market towns, of which the trade is almost entirely local in nature, remit and receive some £100,000 a year through the Post Office.

Further afield in Upper Nile Province, the scene of some of the worst horrors of the slave trade, fresh markets are being opened and its primitive inhabitants are learning the use of money. In the Western Sudan, in Kordofan, Nahud is building up a large local market, and similar developments are going on all over the country in greater or less degree.

Transport and Communications.

Railways.

THE first railway in the Sudan was constructed by Khedive Ismail Pasha in the early seventies of last century. Starting from Wadi Halfa along the east bank of the Nile, the line was to cross the river near Debba, at the foot of the great bend, and to push on to Khartoum and El Obeid. After the completion of some thirty miles, however, funds ran short, and the project was abandoned.

For the next thirty years the history of railway construction in the Sudan is the history of the rise and fall of the Mahdi and his successor, the Khalifa. First the abortive Suakin-Berber Railway of 1884, of which the only relic at the present day is a pair of forlorn signals at either end of the causeway connecting the island base at Suakin with the mainland; then a pause of ten or twelve years while the Egyptian army was being trained under its British officers; then the Dongola Expedition of 1896, when Ismail's old line was made use of and extended to the Third Cataract at Kerma; later in the same year the daring inception of a line leaving the Nile at Wadi Halfa and striking across 250 miles of waterless desert to rejoin the river at Abu Hamed; the capture of Abu Hamed by a river expedition in August, 1897; the arrival of the railway at the same place two months later and its extension southward to the Atbara in the wake of the victorious troops; the battle of Omdurman and capture of Khartoum in September, 1898, followed by the immediate advance of the railway from Atbara, reaching Khartoum on the last day of December, 1899, two months after the final defeat and death of the Khalifa at Gedid.

Access to the Sea.

It was very soon understood that no appreciable external trade could develop until direct access to the sea was effected. The existing line of communication via Wadi Halfa and Egypt involved four transhipments between Khartoum and the sea, and made the cost of transport so great as to be a prohibitive tax on trade. In 1904, therefore, a railway to connect the old Red Sea port of Suakin with the existing line at Atbara was started simultaneously from both ends, and was completed at the end of 1905 and opened by Lord Cromer early in 1906. Traversing, as it does, the dense range of hills which runs parallel to the coast, the location of this line was a matter of considerable engineering

difficulty, but a route was finally found involving no gradient steeper than 1 in 100. When the new harbour at Port Sudan was opened, a branch line was built connecting it with the railway from Suakin.

Simultaneously with the construction of the Nile-Red Sea line, steps were taken to improve the means of communication with the province of Dongola.

The railway from Halfa to Kerma, part of which was, as has been noted, some thirty years old, was becoming unsafe for traffic; the curves and gradients were such as to render the existing alignment unsuitable for commercial purposes, and it could have been satisfactorily dealt with only by complete re-construction. In preference to this a line was adopted from Abu Hamed to Kareima, between which point and Kerma the river is navigable at all seasons. This new line, therefore, tapped the same country as the old Kerma line, but provided a far better route for overseas trade in that it established direct connection with the sea via Abu Hamed and Atbara. It was completed in 1906, the old line having been pulled up meanwhile, and such of the material as was still good having been made use of again on the new lines.

Opening Up the South.

The effect of the direct outlet to the sea now provided was immediately apparent, and the trade of the country at once began to increase rapidly. It must, however, be realized that from a commercial standpoint Khartoum lies at the extreme north of the Sudan. It was realized that the development of the fertile southern provinces and the improvement of their communications in turn would lead to a further increase of trade.

In 1899 the southern terminus of the railway had been left at Khartoum North, on the northern bank of the Blue Nile, opposite Khartoum; any extension southward, therefore, involved a costly bridge across the river. Early in 1907 a contract for the construction of this bridge was signed with the Cleveland Bridge and Engineering Company, of Darlington, which firm was also subsequently given the contract for another large railway bridge spanning the White Nile at Kosti. The Khartoum bridge was finished towards the end of 1909, but meanwhile construction trains had been able to cross the temporary bridge since early in the year and the line was extended as far as Wad Medani. In 1910 the extension was pushed south along the Blue Nile to Sennar, and thence west to the White Nile at Kosti, where the bridge had been completed two days before railhead reached it. In 1911 a further 200 miles were laid westward to El Obeid, the capital of Kordofan Province and centre of the gum trade. This completed the programme of southern extensions.

The Effect on Trade.

The success of these undertakings is sufficiently indicated by the following table, showing in round figures the annual railway revenue for the past eight years :—

1905	-	£E171,000	1910	-	£E391,000
1906	-	£E235,000	1911	-	£E442,000
1907	-	£E298,000	1912	-	£E509,000
1908	-	£E322,000	1913	-	£E553,000
1909	-	£E331,000			

It will be seen that between 1905 and 1909 the revenue practically doubled, largely owing to the opening of the Red Sea line in 1906.

River Transport.

Steamer transport has suffered to some extent from the extension of the railway along the Blue Nile and across the Gezira into Kordofan. The many thousands of tons of gum which used to be carried by camel to the river port of Dueim, and from there 130 miles by steamer to Khartoum, are now transported almost entirely by railway, and only local traffic is carried by water. Similarly on the Blue Nile the important grain markets are now tapped by the railway, and steamers are not now engaged in commercial transport between Wad Medani and Khartoum. But what river transport has lost in one way it will probably make good in others. For instance, the railway to Kordofan should do much to improve the export of live stock to Egypt, and this increased traffic will benefit steamer transport between Wadi Halfa and Shellal. Also, the economic development of the districts served by the railways will add to the trading capital available for the prosecution of trade in the remoter regions of the south, where the steamer service still provides the only means of communication with Omdurman and Khartoum. This effect is already beginning to show.

Principal Services.

In the north the 208 miles of river between Halfa and Shellal link together the Sudan and Egyptian railway systems. Steamers on this reach form part of the Sudan railway service. The river also connects the northern parts of Dongola Province, where important agricultural developments in wheat growing are now taking place, with the Kereima branch of the Sudan railways. South of Khartoum a fortnightly service of steamers to Rejaf (1,096 miles from Khartoum) is maintained throughout the year. Upper Nile and Mongalla Provinces (107,600 square miles) are entirely dependent on this and other services for transport to and from Khartoum and the North.

Steamers are also sent at fixed intervals up the Sobat River, when it is open to traffic from May to December, as far as Gambela (880 miles). At this point the

Government maintains a trading station on a site leased from the Abyssinian Government, which serves as a point of exchange for traffic between the Sudan and a large part of South-west Abyssinia, to which this Nile route gives the cheapest and most effective means of access.

There is also a regular monthly service to Meshra el Rek in Bahr el Ghazal Province (780 miles), and from July to September steamers get as far as Wau, the capital of that province.

The Blue Nile is only open to steamer traffic for about six months in the year. During that period a fortnightly service, with Wad Medani as a base, is run to Roseires (275 miles), and also a weekly service between Sennar and Abu Naama. In addition, tugs and barges are provided for commercial purposes and for the movement of troops and military stores, as well as numerous special steamers for one kind or another of the numerous requirements of the Government.

The Government Fleet.

The Government fleet consists of :—

Steamers	33
Tugs	17
Launches	28
Gunboats	10
Barges, sailing craft, &c.	329

With the exception that some of the larger steamers are in charge of a British or European engineer, these craft are entirely manned by natives.

Since the Sudan Development Company sold its fleet to the Government not long ago all steamer transport has been in the hands of the Government. There are, of course, numerous sailing craft belonging to merchants, which do a very good trade, though they do not as a rule carry large consignments of goods of high value. Gum, for instance, is generally consigned by steamers, where these are available. That part of the tourist business which used to be done by the Sudan Development Company has been taken over by the Steamers Department, and involves the arrangement of special tours for sportsmen and travellers, and the provision and outfit of steamers and sailing vessels.

Most Sudan produce is carried at a rate slightly under 1d. per ton per mile. Manufactured goods pay upstream about 1½d. per ton per mile. Foodstuffs and building materials pay slightly less than 1½d. per ton per mile.

Special cheap through rates by rail and river between Port Sudan and southern districts are in force on articles necessary for agricultural development—e.g., ½d. per ton per mile on machinery. Special through rates are also quoted between Port Sudan and Gambela.

Port Sudan.

The New Great Port on the Red Sea.

FOLLOWING the conquest of the Sudan in 1898, the question of the completion of the long-projected line of railway from the Red Sea Coast to the Nile Valley received early attention. Suakin had existed from time immemorial, and had all the disadvantages of an ancient Eastern town. Its houses were badly built, its streets were narrow and winding, sanitation was non-existent and practically impossible to arrange for on a scale comprehensive enough for the exigencies of a modern port.

Finally, considered as a port, navigation inwards and outwards was rendered difficult and dangerous by day and almost impossible by night, owing to the formation of the long lines of coral reef which guard its entrance. The harbour itself was small and inconvenient.

At this time charts of the Red Sea Coast indicated the existence of a large natural harbour some 29 miles north of Suakin. A native tomb standing on a point at the mouth had gained this harbour the name of Sheikh el Barghut. No dangerous reefs marked the inlet as was the case with Suakin, the entrance was wide, and the formation of the harbour such as would permit of vessels of very considerable tonnage freely swinging without difficulty.

A Commission visited both places in the summer of 1904, and in September of that year reported in favour of Sheikh el Barghut. In April, 1909, the new harbour, one of the best equipped in the world—henceforth known as Port Sudan—was formally opened by the Khedive.

The quay wall as completed is some 610 metres in length, with berthing for five ships. Each berth is 125 metres long, with a depth of water of 30 feet at low water of spring tides.

The harbour has a good entrance of two cables' width; it is well protected from all winds and the anchorage is good. The maximum annual variation of the level of its waters is three feet. The rise and fall is almost entirely due to barometric causes, combined with the semi-annual raising and lowering of the whole body of the Red Sea.

The town, harbour, and quays are lighted by electricity, which is furnished by a power station on the eastern side. The cargo-handling equipment on the quays consist of four three-ton pedestal electric cranes, a seven-ton electric gantry crane, four electric coal transporters, which are specially designed to handle ordinary cargo as well as coal, and an electric coal

re-handling bridge plant. Two five-ton and four one-ton electric capstans are also erected on the quays to facilitate the handling of shipping and of railway trucks. All this equipment is of most modern design.

In addition a steam floating crane is available for heavy lifts up to 60 tons. The dockyard workshops are equipped with electrically-driven machinery for general repair work. But space does not permit of any detailed reference to other features of the undertaking—the stores and warehouses, the European town, Customs, Government, and Port offices, the rolling-lift bridge, the slipway, capable of taking vessels of 800 tons, lighthouse and leading lights, and the hundred and one accessories which go to make a modern port.

Shipping.

Port Sudan town and harbour cost £E866,000 to build and equip, but the expenditure had been amply justified. Since it was opened, Sudan external trade has doubled in value. This increase is mainly the result of new railways, but it has been greatly assisted by the fact that the quick despatch, up-to-date apparatus, and safe entrance, both by day and night, which Port Sudan offers, have made the port attractive to the important lines of passenger and cargo steamers which now call there.

The new port was put into full working order in a remarkably short space of time.

In 1908 the register tonnage of shipping calling at the port was 256,950 tons. This increased to 574,367 tons in 1911—more than double in three years.

The following table shows the nationality of steamers calling at the port in 1908 and 1913 :—

SHIPPING AT PORT SUDAN—1908 AND 1913.

	1908.		1913.	
	No. of vessels.	Register tonnage.	No. of vessels.	Register tonnage.
British	191	201,952	242	431,573
Austrian	—	—	21	63,336
German	12	23,335	21	55,899
Italian	26	27,201	21	24,546
Russian	1	2,027	3	7,494
Dutch	1	2,435	—	—
Greek	—	—	—	—
Egyptian	—	—	2	886
French	—	—	1	16
American	—	—	1	329
Turkish	—	—	—	—
Belgium	—	—	1	17
Swedish	—	—	1	3,262
Total	231	256,950	314	587,358

During these years British shipping has steadily increased from 201,952 register tons to 431,573 tons.

The principal companies calling at Port Sudan are the Union-Castle, British India, Austrian Lloyd, Khedivial Mail, Bombay-America, Clan, Bucknall, Harrison, City, Hall, Ellerman, Strick, Odessa, and the Societa Nazionale de Servizi Marittimi.

Nearly all of these maintain a service at regular intervals.

A recent development of great importance to Sudan trade is the fortnightly call, outwards and homewards, which has now been arranged by means of a joint service of the Union-Castle and British India lines.

It may be remarked that in March, 1913, one of the Union-Castle boats carried home a record consignment of "Empire-grown" cotton, the bulk of which was shipped from Port Sudan.

The safety of Port Sudan for shipping is attested by the fact that about 60 per cent. of the vessels which call arrive and are berthed at night.

There is ample room in the harbour for the largest vessels using the Suez Canal to swing, as was to be seen on the occasion of the visit of King George and Queen Mary.

Roads and Wells.

Linking Up Districts by Motor Traction.

All road-making and well-sinking in the various provinces of the Sudan is co-ordinated under the control of a special department and a central standing committee for the whole country.

The conditions for road-making and well-digging vary greatly, but, generally, with the exception of the ironstone country of the Southern provinces, Sudan roads have to be made over cotton soil or sand of diverse degrees of firmness, while wells have to be sunk through sand, which caves continually, or through granite.

It must not be imagined that the expression "road," as used in the Sudan, means anything very finished in the art of road-making. Firstly, time and money are insufficient; secondly, existing conditions render the finished highways of countries more civilised unnecessary. In most places a track some thirty feet wide, more or less straight, in open country defined by stones, cleared of stumps and trees where it passes through forest or bush, with ramps into and out of the Khors (beds of streams flowing only in the rainy season) forms the "road."

Motor Traction.

A number of roads are metalled in parts, and some are suitable for motor traffic. Recently a road, some 120 miles in length, connecting Tonga, on the left bank of the White Nile, with Talodi in the interior of Southern Kordofan, has been rendered fit for motor traction; a suspension bridge has been erected at a point where it crosses the River Lolle, and in the early future it is intended to use motor tractors and trailers upon it with a view to the gradual extension of their use on other roads suitable for this method of transport.

Another road of great importance has recently been extended between the Yei district of Western Mongalla and Libogo, on the Belgian-Congo frontier, and it is hoped to carry out further experiments in motor traction along this road at no distant date. The Yei-Libogo road taps the trade of Uele, the rich north-eastern district of the Congo State. Moreover, it enables the Sudan Government efficiently to control the passagings of natives to and fro, and thus guard against the possibilities of the spread of sleeping sickness into the Sudan from the infected areas.

A Roads System.

The general scheme, partly carried out and now in the course of continuation, aims at the linking up of all towns and villages with a number of highways which shall extend to all the frontiers of the Sudan. It is hoped that by the gradual introduction of motor tractors the many difficulties of transport which now present themselves may finally be overcome. Thus, with this form of transport in use in the Southern Provinces, the great expense entailed by mortality among transport animals caused by "tsetse" fly and other pests will be obviated.

Roads, however, are of little use without water, and the provision of wells is an important branch of the "Roads and Communications Section." During the dry season a number of well-sinking parties operate at points which have been selected by the geological experts of the Government. In some districts water is found at no great distance from the surface; in others the work entailed in sinking shafts through granite is enormous and correspondingly expensive. Native sheikhs are generally greatly interested in these efforts of the Government to improve the condition of their people, and they make frequent requests for wells, in the sinking of which they offer assistance with labour and, in some instances, with cash.

Modern Well-Sinking.

The wells dug by the natives themselves generally fall into disuse owing to the "caving" of the sides after a very short period of utility.

To meet this state of affairs, a galvanized, corrugated-iron lining of extremely clever design is being used for all wells sunk by the Government. This lining consists of sections, semi-circular in shape, which, when jointed up, form a long circular culvert, which is lowered down the well by the aid of an ingenious apparatus specially designed for the purpose.

Commercial Considerations.

Cattle and Sheep.

The Sudan is a great pastoral country. In fact the main occupation of its people, whether Arab or Negroid, may be said to be the raising of cattle, sheep, and goats. There is no complete estimate of the live stock possessed by the natives, but the number certainly runs into several millions. In some parts the cow is almost venerated. The first step was to win the confidence of the native by doctoring his sick cattle, and doctoring them successfully. Once this confidence was won, it was possible to get measures carried out for controlling movements of cattle and stamping out animal disease. It was also necessary to prove to the native by example that if he would sell his live stock for export he could make a profit, and that so far from diminishing his capital and his consequence by parting with his cattle he was adding to both. The reluctance to sell, which still continues in many districts, will gradually disappear as the owner discovers more and more objects on which to spend the money he makes. The continuous expansion of internal trade and communications will provide the necessary attractions. The native already welcomes the veterinary inspector, and is learning to inoculate cattle himself. Surprising progress has already been made. Over 110,000 sheep were exported to Egypt in 1912, and over 15,000 cattle. In 1911 over 21,000 cattle were exported. The value of these exports has more than quadrupled in three years.

Frozen Meat and Beef Extract.

The export of chilled or frozen carcases to Europe is mainly a matter of capital expenditure for the improvement of stock up to the standard of European requirements. For the present the Egyptian market for live stock provides a good opening for trade, but if, in the course of the next few years (while this demand is being met and while breeding experiments are going on) the preparation of beef extract, an industry which apparently offers excellent prospects, can be successfully undertaken, the foreign trade in animals and animal products should amount to a value of some millions of pounds within the lifetime of the present generation.

Cotton.

Cotton has been grown in the Sudan for centuries both for domestic use and for export, and at one time Sudan cotton and cotton goods had a considerable reputation

in North Africa. In fostering cotton-growing, therefore, the Government has had a foundation of traditional inclination on which to build, and has not been introducing alien ideas. Unfortunately native-grown (beladi) cotton, of which some 8,000 bales were exported in 1912, is a very inferior article. It is all very well to preach to the native the gospel of cotton-growing if by cotton is meant the variety he has grown from time immemorial. He will grow this readily enough to secure the benefits of the new markets which the railway has brought to his door. It is quite another matter to ask him to grow unaided improved types of Egyptian cotton which he does not as yet understand, and which make demands on his labour to which he is unaccustomed.

Small experiments proved that it was no use to deluge the country with Egyptian cotton seed, even if it was given away, unless the cultivator could be supervised and instructed, and to supervise and instruct all the cotton cultivators of the Sudan was out of the question on the score of cost.

Success in Training the Cultivator, Tokar.

The Government therefore selected an isolated area at Tokar, in Red Sea Province, where cotton had been grown by natives for years, but was of the usual almost unsaleable native variety. Good seed was supplied on repayment, cultivation supervised, and the produce graded before sale in the Government market. In three years the crop has been changed out of all recognition. Of the 10,000 bales of lint produced annually at Tokar the bulk is equal or superior to Fully Good Fair Egyptian. By means of a railway and irrigation works, which could be provided at a comparatively small cost, the area cultivated can be increased and the yield improved to about 25,000 bales of a value of some £250,000 to £300,000. The cash proceeds of present and future improvements at Tokar, both to the native and to the Government, are of importance, but the main interest in what has been done is that it proves that the native can and will grow good cotton. What has been done at Tokar can be done elsewhere—in time.

The Gezira.

Over the rest of the Sudan, with its millions of acres and thousands of square miles suitable for cotton cultivation, the problem of the improvement of native methods was a most formidable one until the means for the irrigation of the Gezira came into view. Instead of a sporadic rain-grown crop, cultivated in isolated patches by a scattered population, there will now be a compact area of 500,000 acres under cultivation which can be watched and controlled. This scheme is big, but it is simple compared with the task as it appeared only a few years ago. Owing to the provision of irrigation

the control of methods of production in the Gezira should in fact be easier than at Tokar, though the field is a much larger one.

The Future Crop.

The experiments carried out at Tayiba, the demonstration area near Wad Medani, in the Gezira, have not only proved that cotton can be successfully grown under irrigation within the limit of time during which water from the Blue Nile is available, but have also confirmed the experience gained at Tokar of the capacity and willingness of the native to undertake cotton cultivation on sound lines under proper supervision. A somewhat pessimistic forecast of the annual out-turn of cotton from the Gezira scheme within the next twenty years is about 300,000 kantars (75,500 bales), worth £E900,000. A not unduly optimistic one is 450,000 kantars (112,500 bales), worth £E1,350,000. To this must be added some thousands of tons of wheat, sesame, millet, and ground nuts, and large numbers of cattle and sheep. The value of the produce raised should be somewhere about £E2,000,000. It is impossible to foretell with any exactitude the period which must elapse before the whole area of 500,000 acres is brought under cultivation, as that depends on the rate of growth of the population within the districts directly affected, and also on the drift of population into the Gezira from elsewhere in the Sudan and from other parts of Africa.

The Influx of Labour.

From outside the Sudan there is already considerable immigration, notably of Fellata from West Africa, of whom some 16,000 have arrived since the re-occupation. The pilgrimage to Mecca now brings many travellers through the Sudan. The fame of the Gezira will thus be bruited over the whole of Northern and Western Africa, and is bound to attract settlers.

Kassala.

Kassala Province also offers good prospects for cotton-growing, as soon as the railway connects it with Port Sudan. It should also produce large quantities of oil seeds, grain, and live stock.

Other large districts of millions of acres are suitable for cotton growing, and no doubt they will be gradually developed in their turn. But the Gezira scheme and the Kassala and Tokar schemes will take up all the agricultural energy of the country for some years. The population factor alone must dictate a gradual advance; the Gezira project itself, when in full working, will employ as cultivators some 130,000 men, women, and boys. The total population of the Sudan at present is only about 3,000,000. It is increasing rapidly, however, and there are already enough cultivators to undertake the development of the Gezira scheme.

External Trade.

Thus, in its live stock and cotton the Sudan has two assets on which it may rest secure for its economic future. The total external trade of the country is now about £4,000,000 in value. In twenty years' time its value should be trebled.

Demands of the Sudan Market.

The chief import into the Sudan consists of cotton piece goods, averaging for the last three years about £E471,000 in value and 3,500 tons in quantity per annum. The bulk of this trade is in the hands of Great Britain. There should be a large expansion of this class of import as the wealth and population of the country increases. The market for cotton piece goods in West and South-West Abyssinia, which can be supplied more economically via the Sudan than via Djibouti, is worth attention. Inspectors of the Sudan Government act as British consuls at Gambela in South-west Abyssinia and at Gondar in Western Abyssinia.

Sugar is an import which steadily increases in quantity and value. The imports in 1913 amounted to £E258,750 in value and 16,066 tons in quantity. Most of the sugar imported comes from Egypt. It is an article which some day should be produced in the country itself.

Other principal imports in 1913 were :—

	£E
Flour	86,168
Coffee	67,545
Tea	39,114
Liquors	29,030
Petroleum	15,770
Coal	108,037
Soap	28,536
Perfumery	10,659
Empty Sacks	29,815
Ready-made clothing	41,283
Tobacco	31,223

All these commodities are in regular consumption and the demand is steady.

It appears from the statistics of the last three years, which have been years of poor rainfall and consequent high prices for food grains, that the native, who has been obliged to make economies, has preferred to sacrifice such luxuries as clothes rather than those of food, including tea and coffee.

The value of the imports of another category of articles, viz., those imported by the Government in connection with its works programme, naturally fluctuates from time to time according to the amount of construction in hand. Statistics for 1911 give a good idea of the values of this class of imports. They were :—

	£E
Iron castings	11,532
Iron ware	29,136
Iron and steel (manufactured)	125,287
Machinery	32,758
Timber	152,137

Since then, owing to the completion of the El Obeid Railway, there has been a considerable fall in the value of this class of imports, but, with the resumption of work on railways and irrigation, the value of imports of this kind will again increase.

Exports.

The principal export of the country is at present gum-arabic. In 1912 the gum exported was valued at £E603,511, or 44 per cent. of the total value of exports, viz., £E1,373,119. The quantity exported was 19,615 tons. By far the greatest part of the gum exported comes from Kordofan Province, the remainder from Kassala, Sennar, White and Upper Nile Provinces. The proceeds of the sale of gum are practically pocket money to the native collector. In 1911 and 1912 there was a great rush to collect gum owing to the high prices of grain and increased cost of living. The exceptionally high price at which gum has been selling, and the fact that the forests have been made easily accessible by the opening of the railway to El Obeid, the chief gum market, have also tended to increase the output.

The export of cotton and seed in 1911 was 12,394 tons, equivalent to 22,823 bales of 400-lb. lint; that of 1912 8,154 tons, equivalent to 15,000 bales. This decrease was principally due to drought, which prevented the cultivation of cotton by means of rainfall in the Gezira.

The value of cotton and cotton seed exported in 1912 was £E155,004, and in 1913 £E173,594.

The annual value of the export of cattle and sheep and hides and skins now amounts to about £E250,000 and is susceptible of a very large increase. At present the trade is entirely in the export of the live animals to Egypt.

Other exports are ivory, about £E113,000, oil seeds, including sesame, cotton seed and ground nuts, £E135,000, dates £E32,000, senna mecca £E9,600, vegetable ivory (dom nuts) £E8,000, gold £E44,000.

In 1910 over 32,000 tons of dura (millet) valued at £E118,000 were exported. The drought of the last three years has put a stop to this export, but it will undoubtedly revive.

Sudan dura sells in Europe for about the same price as maize, and is an excellent feeding stuff for cattle.

The trading relations between the Sudan and Egypt are naturally very close. Many merchants doing business in the Sudan are agents for Egyptian houses.

Nearly half of the external trade of the Sudan is still carried on through Egypt. During the last few years, however, and especially since the completion of the railway to Port Sudan, there has been an increasing tendency for trade to pass direct between the Sudan and Europe, notably in the export of gum, oil seeds, and cotton.

In 1913 the imports from Great Britain were £E615,929, but this figure does not include large quantities of goods and merchandise which entered the Sudan from Great Britain via Egypt, and are classed as imports from Egypt. Similarly, the value of the direct exports to Great Britain—viz., £E268,375 in 1913, does not represent the total value of Sudan produce which eventually entered British ports.

The Port Sudan route is now the principal artery of trade. Imports and exports via Port Sudan in 1913 were valued at £E2,014,232, those via Suakin at £E476,698, and those via Halfa at £E813,145.

Trade via other stations in 1913 was valued at £E153,692.

Where the Markets are.

The chief market of the country is that of the three towns of Khartoum, Khartoum North, and Omdurman, standing at the junction of the White and Blue Niles, with a population among them of 120,000 people. This market is the headquarters of both native and European traders.

The chief grain markets in the Blue Nile districts are Singa, Wad Medani, Hassa Heissa, Mesellemia, and Managil.

On the White Nile, Dueim and Geteina export grain.

The markets for sesame are at Singa, Mafaza, and Gedaref in the Eastern Sudan, and at El Obeid and other centres in Kordofan.

Kaka and Kosti, on the White Nile, also trade in sesame.

The chief cotton markets are at Tokar, in Red Sea Province, and Wad Medani.

The principal gum markets are El Obeid, Um Ruaba, and Nahud in Kordofan, Kassala and Gedaref in Kassala Province, Singa in Sennar Province, and Kaka in Upper Nile Province. Nahud, in Kordofan, is the centre of the ostrich feather trade.

The chief cattle market is at Omdurman. El Damer, in Berber, has a thriving sheep trade.

Dates are from Halfa and Dongola Provinces, and are dealt in at Tangassi and other local markets.

The headquarters of the ivory trade is at Omdurman.

A trading station has been established at Gambela, in Abyssinia, on the upper waters of the Baro, on a site leased from the Abyssinian Government. This place is

the outlet for various articles from Abyssinia, viz., coffee, beeswax, and rubber. It provides a trade route capable of great development, especially for Manchester goods and hides and skins.

Merchants' interests are represented in the Sudan by the Sudan Chamber of Commerce, established at Khartoum.

The Bigness of the Future.

Notwithstanding the improvements and developments to which reference has been made, as well as a multitude of others which might be recorded, the Sudan still remains, commercially speaking, "a country of the future," for the progress which has been made amounts to little more than a reconnaissance which has sufficed to bring into view its great possibilities.

The Sudan is as yet comparatively untouched by European productive enterprise, and it is only reasonable, therefore, to suppose that when it comes the country will receive a further impetus, as it will no longer be necessary to depend almost entirely on the exertions of the native working without the stimulus of European supervision and instruction, except what the Government can give. In all pioneer work there must be a considerable percentage of failure and disappointment, but the Sudan has already lived down its old evil reputation, and there can be no doubt as to its future prosperity. Two of its industries, cotton growing and stock raising, should alone be sufficient to carry it forward to wealth and importance, but to these can be added many other forms of production which are rendered possible by the variety of soil and climate prevailing over such a vast area. Ostrich farming, oil seeds, rubber, dates, cereals, tanning materials, and fibres all offer promise for the future. Owing to the handicap of its bad start it took some time for the country to get under way, but since it began to move the rate of its development has surprised even those who know it best, and there is no reason to doubt that the pace will be maintained and will probably be accelerated.

Principal Crops.

Geographical Position.

A GLANCE at the map reveals the fact that, as regards its geographical position, the Sudan is very favourably situated compared with other countries with which it will compete as a producer of raw cotton, grain, and other commodities.

Excluding the range of mountains which divides the Red Sea from the Nile Valley, the general nature of the country is that of a vast level plain, the monotony of levelness being broken by only a very few isolated hills, or groups of hills, and these rising to no great altitudes.

No serious obstacles exist to render difficult such engineering works as may be required for the development of irrigation systems and railroads.

Climate and Rainfall.

As regards climate, the conditions must be regarded as on the whole extremely favourable to agriculture.

As is to be expected in so extensive a region, the climate varies to a certain extent in different districts, and the meteorological variations of greatest importance to agriculture, as at present practised, are those which determine the amount of moisture precipitated during the annual rainy season.

This factor divides the Sudan, roughly, into two zones of cultivation—viz., the northern part, in which cultivation is practically dependent upon irrigation from the Nile, and the southern zone, in which the crop results are mainly determined by the rainfall.

The line of division may be taken to be somewhere a little south of Khartoum, for although some rain cultivation is carried on north of that place, and some irrigation practised further south, the agricultural community in each zone is practically dependent upon the respective systems.

In the Northern Sudan certain factors other than the actual amount of annual rainfall enter into the calculation, especially in regard to the cotton crop, and of these the relative humidity of the atmosphere during certain stages of the growth of the plants, and the minimum temperatures at another season, would appear to be the most serious.

Fortunately these adverse conditions are not found to prevail over the extensive areas in the Central and Eastern Sudan, upon which it has been proved that cotton is a successful crop, and in these districts the distribution and amount of the rainfall is the real

limiting factor in connection with the cultivation of cotton and other crops.

It is in these regions, therefore, that a great development is possible, provided the limiting effect of this factor can be eliminated, and a sufficient supply of moisture ensured for the proper development of the different crops, by means of irrigation works.

The Nile and its tributaries, with such streams as the Gash and the Baraka, provide an almost unlimited supply of water.

Any list of the crops which can be successfully raised in the Sudan must be headed by cotton.

Under irrigation long-stapled cotton of excellent quality and equal to that grown in the Egyptian Delta can be produced in large quantities, while cotton of the American type can be grown over wide areas dependent upon the natural rainfall only.

Cotton and other Products.

Some 3,000,000 acres in the eastern and central districts, entirely suitable for the production of Egyptian cotton, can be readily provided with the necessary water, and there can be little doubt that the area which might be eventually developed in this way is far in excess of that figure.

Wheat and Grains.

Of other crops such valuable cereals as wheat, maize, and dura (sorghum) may be mentioned. Wheat is only grown on irrigated land and is a winter crop, sown in November and reaped in April. It can be cultivated on both perennially irrigated land and on inundated basins, in which one heavy flooding only is possible. The types of wheat already in the country have been carefully examined as regards their milling and baking qualities, and have been most favourably reported upon. They appear to possess much the same qualities as the higher grades of Indian wheat, and would command a ready market in the British Isles. On the Gezira experimental station at Tayiba yields of over 50 bushels per acre were obtained this year.

Maize is largely grown on islands and flooded slopes along the Nile, and also on irrigated land, and can undoubtedly be produced in large quantities.

Dura (sorghum) is the staple grain food of the country, and is grown on rain land, on irrigated holdings, and on areas flooded by the annual rise of the Nile.

There are many varieties of this grain produced in the Sudan, each suitable for some particular locality or condition of soil and climate.

Oil & Fodder Crops.

Valuable oil-producing crops are already an established feature of the native agriculture of the country.

Sesame and earth nuts are cultivated in many districts, while castor can be grown almost anywhere in the Sudan and thrives with the luxuriance of a weed.

Leguminous fodder and other crops succeed in the Sudan. From their particular quality as restorers of soil fertility they must assume greater importance under a system of intensive agriculture such as will have to be practised on the areas to be provided with irrigation.

Lucerne grows well and is a valuable fodder crop in the Sudan, as elsewhere, and Egyptian bersim flourishes during the cold weather.

Of a number of plants which are known to the native cultivator under the generic name of "lubia" the Dolichos Lablab and Vigna Sinensis are valuable crops. The former is a splendid fodder and produces a heavy yield, while the beans of both are used as food for men and animals.

Beans and peas are grown to a certain extent in the Northern Sudan.

A list of native and imported crops is given below :—

Table of Products.

English.	Arabic.	Botanical.
Cotton	Kotn	Gossypium barbadense
Millet	Dura, Aish	Sorghum vulgare
Maize	Dura Shami, Aish el Reif	Zea Mays
Wheat	Kamh	Triticum vulgare
Lesser millet	Dukhn	Pennisetum typhoideum
Barley	Shair	Hordeum hexasticum
Sugar cane	Kasab sukr	Saccharum officinarum
Bean	Ful	Vicia faba
Lubia	Lubia afin	Dolichos lablab
Cow pea	Lubia helu	Vigna sinensis
Lupine	Termis	Lupinus albus
Pigeon pea	Ads Sudani, Lubia ads	Cajanus Indicus
Chick pea	Hommos	Cicer arietinum
Lucerne	Bersim Hegazi	Medicago sativa
Bersim	Bersim Masri	Trifolium Alexandrinum
Earthnuts	Ful Sudani	Arachis hypogæa
Sesame	Simsim	Sesamum orientale
Castor oil bean	Khirwa	Ricinus communis
Safflower	Gortum	Carthamus tinctorius
Rozelle	Kirkade	Hibiscus Sabdariffa

Agricultural Methods.

The present condition of agriculture in the country is very primitive, and there are various good reasons for this. The lack of any settled Government until within the last dozen years or so, and the consequent absence of any real security of life or property, would have militated against any great advance in methods of cultivation, even without the additional checks of insecure seasons, as far as rainfall is concerned, and the absence of any cheap means of transporting the surplus produce of the country to outside markets.

The systems of cultivation practised over a large part of the country are induced by the sense of insecurity as to the annual rainfall.

The provinces in which irrigation is most generally practised are Khartoum, Berber, and Dongola. Two systems are followed—viz., canal irrigation, which necessitates the lifting of water from the river during the whole period of the growth of the crops, and basin irrigation, by means of which certain blocks of land having a surface level lower than that reached by the river in its annual rise receive one heavy flooding, which supplies the soil with sufficient moisture to mature a grain crop.

Water-Lifting Machines.

With the exception of a few estates controlled by foreigners, on which water is raised by power-driven pumps, the whole of the perennial irrigation is carried on by means of two native water-lifting machines, the sakia or Persian wheel, and the shadoof water lever.

Large Irrigation Schemes in Progress.

Basin irrigation on anything like a large scale is confined to Dongola province, where several schemes of considerable magnitude are being gradually carried out by the Government. These, when fully developed, will provide for the irrigation of approximately one hundred thousand acres, from which a large production of grain for export will be derived.

Wheat is the principal crop on basin land in Dongola, but some barley is also grown, as well as certain of the leguminous crops.

Another form of natural irrigation, which does not strictly come within the two systems mentioned above, is taken advantage of in the Sudan, in the case of certain torrential streams, which coming down in a series of spates from the hills, spread out over their deltas when the level bed is reached and flood considerable areas of fertile land.

The river Baraka, rising in the mountains which divide the Red Sea from the Nile basin, so irrigates the plain at Tokar on the Red Sea, where some 50,000 acres of cotton is grown in a favourable season.

At Kassala the river Gash, descending from the Eritrean hills, acts in the same manner, and here it is considered that an area little short of a quarter of a million acres, much of which is eminently suitable for cotton growing, could be developed by the provision of a system for controlling the flood.

Certain works have already been constructed on the Gash, and schemes for the full development of both these districts have been prepared by the Government.

Central and Southern Provinces.

In the rain zone the system of farming is characterized by its simpler nature, and the less arduous and sustained application of effort to the cultivation of the soil. The results are entirely dependent on the quality

of the rains. The soil in most cases is fertile, and the cultivator is aware that when the season is favourable the crops will succeed without any special effort on his part, and realizes, moreover, that when the rainfall is deficient, nothing that he can do will make much difference to the final results.

Such conditions could not be expected to evolve a high standard of farming, but the energy and the faith with which agricultural operations are pushed on, when there is the slightest promise of good rains, is a remarkable feature of the system.

Rainfall.

The rainy season varies in duration in different parts of the country, but in the more important agricultural districts, such as the Gezira, commences on the average in July and ends in October, the heaviest fall as a rule being in August and September.

In the Gezira a system of embanking is employed, by means of which as full advantage as possible is taken of such rainfall as occurs. Plots of varying sizes, roughly determined by the surface slope, are surrounded by small banks, which prevent the water from running off the surface when, as is frequently the case, the rain falls more rapidly than the soil can absorb it.

The Method of Tillage.

No tillage of the soil, such as is undertaken on more intensively cultivated lands, is practised, and in the Gezira tract the only preparation carried out for the crop is the extension and maintenance of the system of embankments.

In some parts the natural growth of grass and other herbage has to be removed, and this is generally effected by burning over the area to be planted. Such burning in some cases is followed by a hand-hoeing of the surface.

Sowing commences as soon as it is considered that the rains are really established, and at that time the whole population is extremely busy.

The seeds are sown in holes dibbled in the soil, the native adaptation of the dibble being an ingenious tool called a "seluka," which is designed to allow of the operator carrying on his work without suffering from the fatigue of a bent back. The seluka is a long stick with a sharpened point, and curved in a certain way which allows it to be swung round when the point is in the ground. Pressure can be applied by the foot, if any is required, to force it into the ground. It is used with a circular motion, which leaves a clean hole with a ramped side, into which the seeds are dropped by a sower, usually a woman or a child, following the seluka man. The sower covers the seeds by kicking a little of the surface soil into each hole as he proceeds to the next.

Wide sowing is practised, experience having taught the cultivators that when the supply of moisture in the soil is restricted only a certain number of plants can be matured in a particular area, and that under such conditions a better yield of grain is obtained from a limited number of such plants than from a greater quantity, which, through lack of sufficient moisture, fail to attain to full development.

The only other operations carried out previous to the harvesting of the crop are confined to one or two light hoeings when the growth of weeds is considerable.

A long-handled push hoe with a half-moon blade is used for this purpose, and with this tool the weeds are cut and the surface soil given a slight stirring.

The crop is cut with a very small knife and carried to a threshing floor in the fields, where the grain is beaten out by women or trodden out by cattle.

In the case of dura, the commonest grain crop, the stalks are kept for fodder, to be used during the dry season.

In good years the amount of grain produced is very large, and the native practice is to store this in pits dug in the soil as a provision against the lean years, which experience has taught them are of regular occurrence.

Experiments. The Gezira experimental station at Tayiba was started to prove the possibilities of cotton-growing under irrigation in the Gezira, the development of the district by such means having long been under consideration.

An area of some two thousand acres was taken up, the irrigation being provided for by means of steam-driven pumps raising water from the Blue Nile.

Two full seasons' working have now been completed, and the results have exceeded the most optimistic estimates.

The average cotton crop for the two years has been 530-lb. and 550-lb. of lint per acre respectively, while, as already mentioned, yields of over 50 bushels per acre of wheat have been obtained.

These results, moreover, were obtained by cultivators who rented the land from Government; some of these were immigrants, but many were natives of the Gezira who had no previous experience of farming under such conditions.

At Tokar the provision of good seed by the Government and the instruction and supervision given by the agricultural inspectors have resulted in such an improvement in the methods of cultivation and in the quality of the cotton produced that Tokar cotton, which a few years ago commanded a price of 1½d. to 2½d. per lb. less than Egyptian F.G.F., is now sold on a parity with the Delta cottons.

The yield per acre has also increased, and will be further raised as the native cultivators have begun to grasp the significance of the results obtained on the Government plots, where the value of thorough cultivation and careful methods has been successfully demonstrated for some years.

Ploughing.

Ploughs were practically unknown at Tokar a few years ago; now the cultivator is not only anxious to plough his land, but, not content with the light, wooden implement used in the country, is importing heavy iron ploughs of British manufacture.

In Dongola the development has not been dependent upon the extension of one valuable crop such as cotton, but has been spread over the general agricultural produce of the province.

Practically the whole of the land irrigable by means of sakias has been put under cultivation, and the extension of basin irrigation is permitting a rapid increase in the area of cereals grown.

Dates.

The sense of security resulting from a belief in the honest intentions of the Government has induced the landholders to increase the value of their properties by planting and carefully attending to a largely increased number of date palms, from which a considerable proportion of the wealth of the province is derived.

Fibres.

The word "Cotton" bulks so large in the Sudan at present that it tends to obscure the claims of other important fibres to consideration. It is not suggested that the cultivation of these useful but less valuable products should be carried on at the expense of cotton. There is ample room for both, and the conditions of their exploitation are so entirely distinct that they can be delevoped independently of one another. These fibres are another string to the Sudan bow.

The following remarks apply to the cultivation of fibres by means of rainfall in districts which are extremely unlikely ever to be in demand for cotton-growing. These products also have this advantage, that their cultivation places hardly any strain on the cultivating power of the native, and they are thus eminently suited for adoption as a crop for the simple and primitive population inhabiting the districts in the Southern Sudan, which are most suitable for their exploitation. The difficulty lies not in producing the plants which yield the fibre, but in the retting and preparation of the fibres for the European market. None of the indigenous fibres could be utilized in their natural state for export to Europe, as the quality of the

fibre collected from plants growing naturally would not be constant, and the price for a mixed lot of stuff of different qualities would not be remunerative.

To compete successfully with jute and other fibres it would be necessary to cultivate the plants as field crops in order to obtain fibre of constant length and quality.

To promote the industry, therefore, it is necessary to carry out experiments *in situ*, firstly, because the conditions in the Northern Sudan, where experiments might be carried out under irrigation, are so different from those where the fibre would be grown commercially as to render the results misleading; and secondly, because the essence of the problem is to instruct the local population in methods of preparation, since imported labour from the North is too expensive to consider for practical purposes.

No doubt the introduction of a few white overseers who are already acquainted, by actual experience in other countries, with fibre cultivation and extraction, would soon prove of value in starting the ball rolling, especially if experiments could be carried out on a commercial basis. The lack of local labour will probably preclude for some time any possibility of private enterprise undertaking operations on any considerable scale, but there is reason to believe that even now it would be by no means out of the question for a company equipped with the necessary skilled assistants to make a satisfactory beginning. They would certainly have plenty of material on which to work.

Among the Malvaceæ, for instance, there are various species of Hibiscus, which are worth attention. One of these is the Hibiscus esculentus, a wild variety of the cultivated okra or bamia of the natives, a tall, erect shrub of six to twelve feet high, common on cotton soil in the forest, in abandoned cultivation, and in swampy places, where the plant attains a height of twelve feet or more, having a single unbranched stem. The natives extract the fibre by retting and make it into ropes for tethering their cattle.

In 1910, a small area was planted on the Government farm at Sacleil, on the Blue Nile, and about 1-cwt. of fibre obtained by retting. The fibre was five feet six inches long, of good quality, strong, and of a clean white colour and good lustre.

Hibiscus cannabinus (Arabic, Til), the Deccan hemp of commerce, grows wild as a tall, weedy shrub, nine feet to fourteen feet high. It is common in Mongalla Province, where it thrives in swampy places, notably on some of the islands south of Mongalla. The natives use the fibre for making ropes for cattle and for harpooning the hippopotamus. This plant could be extensively cultivated in Mongalla, and there are great possibilities

of eventually establishing a fibre industry from its cultivation.

Other species of Hibiscus are also found growing wild, amongst them being the Hibiscus sabdariffa (Arabic, Karkadé), a tall, erect shrub, which yields a strong fibre known in commerce as "Rozelle hemp." Under cultivation it could be made to produce good fibre similar to others of the same genus.

Among the Tilliaceæ are some of the Grewias, which are common on the Blue Nile, but their fibre has not yet been tested.

Two Tilliaceous plants were raised at Saoleil some time ago, of which the fibre was about six feet long and of good quality. They have not yet been identified. They grow very luxuriantly in the rains, without irrigation, and could easily be cultivated.

Jute and Hemp.

The jute plant, Corchorus olitorius, which is commonly cultivated in the Sudan for its leaves, which are used as a vegetable, could easily be grown as a rain crop. It produces a good fibre which is the true jute of commerce.

Indian jute, Corchorus capsularis, has been grown experimentally at Kodok, in Upper Nile Province, with success. A sample of 70-lb. of this fibre was valued in London in June, 1911, at £24 per ton, first native marks of Calcutta jute being at £25 per ton.

The Sudan also contains several Sansevieras which yield useful and valuable fibres. The plant grows sporadically in Mongalla and Bahr el Ghazal Provinces, but is nowhere plentiful. It offers, however, good chances for cultivation.

One of the Sansevieras, viz., Sanseviera guineensis, the leaves of which yield the fibre known as "Bowstring hemp," is widely distributed throughout these regions, but owing to its scattered nature it cannot be profitably exploited. It is readily propagated, however, from bulbils, and large forest areas could be planted with it, at small cost, in close proximity to land suitable for the cultivation of the jute fibres already mentioned. Such plantations would begin to yield their crop of leaves after the second year of planting.

Experiments have been carried out with very good results in growing Crotolaria juncea, the sun hemp of India. An allied species of this plant, Crotolaria striata, is commonly found in waste places, and grows more or less associated with Hibiscus, or at any rate is to be found in the same region. It yields a strong fibre of long staple, very largely used by natives for making their nets for trapping the larger wild animals. Its cultivation offers no difficulty.

The Ushar bush, or Dead Sea apple tree (Calotropis

procera) may turn out to be of value, as it is understood that a machine has recently been invented which claims to be capable of dealing with the Calotropis fibre. The Ushar plant is very common in the Sudan and could readily be cultivated. A small sample of Sudan Calotropis fibre was valued in May, 1912, at £24 per ton in London, this being the same price as that of Mexican sisal hemp.

The Banana, Musa textilis, which yields the well-known Manila hemp of commerce, could be grown in the swamps of the Sudd region, and as the separation of the fibre does not require machinery, the introduction of this species of the banana family might result in the establishment of a valuable industry. The common cultivated plant, which grows readily in Mongalla Province, yields good fibre.

Paper-making Materials.

Last but not least is the giant sedge, or papyrus, Cyperus papyrus, which is one of the chief constituents of the vast region known as the "Sudd," which covers an area of many thousands of square miles between the sixth and tenth parallels of N. latitude.

It is hard to believe that this almost inexhaustible supply of some of the best paper-making material in the world will not eventually be turned to account. There is, of course, no doubt whatever as to the suitability of papyrus for the manufacture of paper pulp. The difficulties lie in carrying on successfully, on a commercial basis, a local manufacture in these inhospitable regions. If these obstacles can be overcome the way would be cleared for the creation of a large paper pulp industry.

It is evident from the foregoing that the Sudan has an asset of great potential value in its fibres, and as time goes on and population increases considerable developments may be looked for.

Gum-arabic.

The working of the vast areas of forest in which the gum trees are found is entirely in the hands of the natives. At the commencement of the dry season, from December to January, the villager sets out for his "garden," armed with a small axe and a skinful of water, to tap the trees. All that the native does is to separate a small piece of the bark with a blow of his axe and then with his hand to tear the bark upwards. After a period of seven days the gum has commenced to exude along the blaze in a thick viscous form, not sufficiently liquid to drip from the tree. This hardens rapidly in the sun into a tear of from a half to two inches in diameter. The native then returns and collects the hardened globules by knocking them off into a small bag. Gum continues to exude until May, and similar

collections are made every ten days or so. Sudan gum-arabic has established a reputation on the European and American markets, and there has been a consequent rise in price and a steady increase in the industry of the native collector.

The principal gum exported is the so-called "Hashab." Large areas of forest still remain untouched. There are also thousands of square miles of forests of Talh gum, which fetches about half the price of Hashab gum, but at present only a trifling quantity of Talh gum is exported.

Khartoum.

The Resurrection of a City.

In 1884, Khartoum had a population of about 50,000, and possessed many fine buildings. In 1886 Khartoum was a mass of ruins, and there were no inhabitants. The only buildings left standing, or partly standing, were Gordon's Palace, the Arsenal, and the Mission-house. The whole city had been evacuated in three days by order of the Khalifa Abdullah, and then razed to the ground. Most of the woodwork and a great deal of the stone and brick work were taken over to Omdurman and used for the building of the new city.

For twelve years, from 1886 to 1898, Khartoum lay a mass of deserted ruins. The rebuilding began after the battle of Omdurman, and to-day on the site of Gordon's Palace another and finer building has arisen, the present Governor General's Palace.

Trams and Boulevards.

To-day Khartoum is a large and, in parts, a beautiful city, with a population of nearly 30,000 and many large and handsome public and private buildings, cathedrals, a mosque, schools, hospitals, hotels, metalled roads and boulevards, excellent water and electric light supplies, railways, trams and ferries, and all the furniture of civilization. It is, of course, the seat of the Government of the Sudan. Where houses and gardens were once strewn with beheaded and mutilated bodies and only heaps of ruins met the eye, to-day fine buildings again raise their heads amidst palm trees and lovely gardens. On the river bank, where the steamer Ismailia was moored near the Palace on the memorable 25th of January, 1885, ready for the retreat of others, though not for the ill-fated Gordon, one now sees a flotilla of steam launches and sailing boats peacefully moored to the bank.

Modern Khartoum has given birth to a daughter city, Khartoum North, on the opposite side of the Blue Nile, which has a population of about 20,000 inhabitants.

Khartoum has not a very long history. It seems to have come into existence first as a military station under Mohammed Ali about 1830. In 1846 Petherick found it a town of considerable size, and mentions its low-lying site and irregular plan. By 1850 there were some 3,000 houses and a population of 30,000. In 1862 Sir Samuel Baker visited Khartoum, and

lays stress on its insanitary condition, general filthiness and unhealthiness, and estimated the population at 30,000. By 1870 the population had dropped to half, and Baker notes that the misery and stench had "vanquished the European settlers." He speaks of it as "a hateful spot." Schweinfurth, in 1871, described it as possessing "a fatal climate." In 1878 Romolo Gessi Pasha mentions it as full of slaves, and says that cholera, typhus, and other fevers spread throughout the town, decimating the population.

Such was the past record and reputation of Khartoum. Let us see how it stands to-day. First, as to its climate. The city is 1,255 feet above sea-level (Mediterranean), and has the advantage of possessing a desert climate. It stands near two mighty rivers, for it is on the wedge of land which divides the Blue from the White Nile. The two rivers join a few miles further north to form the main Nile opposite Omdurman. From the end of October to early April Khartoum is an ideal winter resort.

Winter Sunshine.

Glorious sunshine follows day after day, it is warm but seldom hot, a steady daily breeze blows from the north, and the sunsets are gorgeous beyond the power of the pen to depict. After April the weather gets hot, and May, June, September and early October are often the most trying months. But though the heat is great, the temperature sometimes reaching 112 to 115° Fahrenheit in the shade, the atmosphere is so dry that it can be easily borne without great discomfort. Except that the heat is trying and somewhat debilitating, Khartoum even in summer is one of the healthiest towns in the world. Even in the hottest weather the nights are nearly always pleasantly cool, and consequently one can always get the refreshment of a full night's sleep.

Khartoum usually has only two or three heavy showers of rain during the year, often during July and August, as it lies just on the edge of the rain zone, and so all the agriculture and gardens depend on irrigation from the river or from wells for their water supply.

A Clean Bill of Health.

Statistics prove the claim of Khartoum to be one of the healthiest towns in the world. The sanitary year is reckoned from October 1st to September 30th, and for the year ending September 30th, 1912, we find the recorded death-rate is but little over nine per thousand. The mean death-rate for England and Wales from 1901-8 was 15.6 per thousand and for 1910 was 13.5, while the death-rate for town districts in England is often about 18 per thousand—double that of Khartoum. When one compares Khartoum's record with some of the death-rates of large towns in India during 1911 the contrast is still more striking. The death-rate at Delhi

is given as 50 per thousand, Bombay 35.6, and Calcutta 27.2. During 1912 the number of cases of such diseases as malaria, dysentery, typhoid, and diphtheria, were respectively 75, 13, 6, and 8 in a population of 50,000 inhabitants. This means an incidence of one case of malaria in every 666 inhabitants—not a bad record when one remembers the difficulties of anti-malarial work with the irrigation and the thousands of pools left by the falling Blue Nile. And it must be pointed out that 1912 was a bad year—indeed, by far the worst since statistics have been kept. During 1911 there were only nine cases of malaria, in 1910 nineteen, in 1909, three, and in 1908 nine.

It is sometimes stated that the incidence of typhoid fever is the best indication of the sanitary state of a town. Khartoum had only six cases of typhoid among its population of 50,000 during 1912. Since the re-occupation in 1898 there have been no epidemics of plague, cholera, typhus, or small-pox. There were two cases of smallpox in 1904, but to-day the population is very highly vaccinated.

The Paris of the Sudan.

A Festival at Omdurman.

JANUARY 17th last year was a great day in the annals of the three towns of Khartoum, Omdurman, and Khartoum North. To begin with, it was proclaimed a general holiday as "King George the Fifth's Day." The King and Queen paid their famous visit to the Sudan on January 17th, and the King then expressed the wish that the day should become an annual festival. Accordingly the first annual Fair and Industrial Exhibition was inaugurated, and a beginning made of what, in days to come, may become one of the most famous sights in Central Africa.

The history of Omdurman is short but full. It only dates from the rise to power of the Khalifa, but its brief pages epitomize all the griefs and triumphs of that blood-stained tyranny. No blow was struck during those twelve years of anarchy, no life was lost, nor victory gained, which did not, for good or ill, touch the life of one or other of the four or five hundred thousand people living within the confines of the city. It was thence that the Khalifa's armies marched out to war, and thither they returned with their spoils and captives. It was the policy of this suspicious potentate to gather near him under his watchful eye not only his friends but his foes, while of the rest of the Sudan he made a desolation and called it peace.

Africa's Greatest Native City.

Thus in a few years Omdurman became the greatest purely native city in Africa, and acquired a prestige that to this day causes its name to be known in every village from coast to coast. Its tragic birth and direful history, followed by its emancipation in 1898, have made Omdurman one of the greatest landmarks in the chronicle of the native races of tropical Africa.

The advent of the Anglo-Egyptian Government loosed the bonds which held this great populace in a state of semi-captivity in Omdurman, but though the number of its inhabitants has now shrunk to some 70,000 people, Omdurman is still the pulse of the Sudan. To the provincial native it is as London and Paris are to England and France, and tribesmen from distant pastures in remote provinces look forward to their visit some day to this native capital of the Sudan.

It is also the central halting-place for that mysterious twofold stream of pilgrims straggling eastward from the regions of West Africa to Mecca, and westward on their

homeward route after the performance of the pilgrimage. Some of these wayfarers take several years to walk their way across Africa, and settle temporarily in Omdurman until they have recovered from their hardships and acquired the means to continue their journeys.

Town Houses of the Great at Omdurman.

All the principal tribes and families of the Sudan have their legates and agents at Omdurman, to enable them to keep in touch with the Government and the movement of affairs. It is the headquarters of the chief native traders and the great produce market of the whole country. Wealthy natives maintain there a town house in addition to their homes in the country. Omdurman is thus a focus of native life and clearing-house and exchange for the whole of the Sudan, as well as the centre of a great native intelligence system. The city itself in its every-day aspect is a wonderful exhibition and museum for the stranger or the student of tropical life. But at this gathering no one could be present among the thousands upon thousands of thronging natives without feeling that sense of exaltation, quite different from mere excitement, which is produced by attendance at some great or unusual spectacle.

Much has been written about the psychology of crowds. In this land of immense solitudes and limitless expanses of lonely desert and plain such a vast gathering of people as that at Omdurman on that famous Friday is a rare and astonishing sight, and possibly the stimulus to the nervous system, not only of the crowd but also of the spectator, was for that reason accentuated. At any rate it seemed on that day as if the Sudan had at last come back to life again, its valley of bones re-kindled into eager jostling, shouting, laughing, humanity. Omdurman was indeed awake after its long nightmare, and was very pleased to be up and doing once more.

Round the Fair.

It is impossible to do more than glance at the show itself. Imagine a great square, gay with thousands of flags and streaming bunting, giving a bright contrast of varied colour to the white, blue and black garments of the surging crowd beneath. Around this quadrangle booths and stalls decked out in many colours, merging here and there into the town itself, a turn to the right or left leading into the populous alleys of the bazaar. The stalls full of all the miscellaneous mysteries of native produce—condiments, herbs, spices; Dervish relics, including "jibbas" or Mahdist uniforms, looking, it must be said, suspiciously new; oil seeds and gum, silver and gold work, gorgeous camel saddles and caparisons in truly excellent leather work, a craft in which the Arab excels; stalls of fruit and vegetables

that would command approval even in Covent Garden, though grown in the desert air of Khartoum; spears and shields, chain mail, old and new, vouching themselves as made in Damascus; helmets which one may hope were once really borne by Crusaders; oil of Ostrich fat, an African specific for rheumatism; sweetmeats of local manufacture and design, with the usual crowd of little boys adhering to them; sheep and goats inextricably involved amongst the legs of the spectators; ivory tusks and rhino horns and hosts of other products of which Europe knows not the name, but which nevertheless contribute to its daily comforts or afflictions. Not least among the sights were the rows of Sudanese mothers, baby in arms or on shoulder, squatting on the ground, with baskets of white linen work and embroidery at their feet, their dusky faces agleam with excitement at the chance of the passer-by purchasing some oddment from their miscellaneous wares.

The College Boys.

Interspersed here and there among the stalls were some Government exhibits. That of the Gordon college was a hive of industry, with its tiny boys at work at the potter's wheel, a new industry recently started at Omdurman; others hammering at the forge; others stone-carving—all as happy as could be and swelling with pride under the eyes of the thousands of uncles and cousins who watch them over the railings. Another exhibit of interest was that of the Steamers Department, showing most fascinating models of craft made by Sudanese apprentices, ranging from up-to-date steel boats to "nuggars" of an antique design as old as the pyramids.

These were some of the sights, but the great fact of all was the show as a whole. There was the kaleidoscopic crowd, the jumble of nationalities, colours, and creeds, the babel of tongues and noise of many voices. But what most struck the European spectator was that there was no sound of footsteps, and none of bellowing and shrieking of steam organs and other unmusical instruments that afflict the ear at a European fair. There were certainly some swing-boats (home made), but not a single hurdy-gurdy.

This was the first spontaneous effort of Omdurman to organize on a great scale. The Khalifa's rule made such complete havoc of all the fabric of industry and social structure in the Sudan that it generally falls to the lot of Government to guide the first steps of any new enterprise. This time the people seem to have found their feet. It was therefore doubly refreshing to see this free manifestation of the joy of living and doing.

Night Scenes.

Many visitors perhaps would carry away with them only the memory of the scene by night. The broad river

dimly gleaming under the young moon, the fairy-like arrival of the steamers, gliding to the landing-place at the historic South Gate, the bustle of disembarkation and the ride over the sand through the Dervish ruins of old Omdurman between the mile-long double line of torches glinting upon the ebony faces of the torch-bearers, the vast praying square of the Khalifa, a sea of darkness girt about with walls lit with thousands of lanterns, the distant cadence of barbaric music rising and falling as the military bands advance or retreat under flickering jets of flame, the entry of the troops first seen as a snake of fire emerging from the outer gloom, the convolutions of the torchlight tattoo, and last of all a magnificent display of fireworks mingling their stars with those of the firmament.

Strange Visitors.

One picturesque figure was that of an emissary of the Sultan of Darfur, an old warrior bearing a battle-axe, lately come to Khartoum with his bodyguard. He spent the evening crouched on the steps of the gangway of the Grand Stand, oblivious of the rank and fashion of Khartoum stepping over him on their way to and from their places. There he sat, unmoving and apparently unmoved, gripping his weapon while bands crashed their music and rockets soared to heaven. It is a pity we shall never know what he told his friends in distant Darfur of the strange ways of the world of Omdurman.

A still more striking object and one fuller of meaning was a group of swarthy Nuba tribesmen from the Nuba Mountains of Southern Kordofan. The remote forbears of these people dwelt upon the banks of the Nile in Nubia, and their "Kujurs," or religious chiefs, some of whom were present at the ceremony, are held to be the direct successors of the Priest-Kings of Ancient Egypt. The emblems of their priestly ritual still maintain the shape and style of those in use thousands of years ago.

This was their first visit to Khartoum. Indeed, some of them had never before ventured themselves beyond the fastness of their hills, but inspired by belief in the strength and justice of the Government they have retraced the footsteps of their ancestors and bridged the centuries. Truly one of the romances of history to find these inheritors of the ages at Omdurman Fair on King George's Day!

The Lighter Side of the Sudan.

THE Sudan has the reputation of being the young man's country, and although some of the young men of the period when this was written would perhaps feel slightly flattered to be so described now, it is mainly true. Consequently, when so many juveniles are gathered together, varied forms of diversion for the non-working hours naturally come into being. It takes two to make a quarrel; it takes very few more to make a game. Indeed, two are ample for golf; four often enough make three separate and one combined argument.

Premising, then, that the Sudan is essentially a hard-working country and that relaxation is only a means to the end of further effort, we will take the various forms of amusement in order.

Big Game Shooting.

The most famous and widespread is, of course, shooting. All over the country big game is scattered. The variety is extraordinary. The game laws are framed so as to be liberal without being wasteful, and every year parties of tourists of all nationalities arrive and depart well pleased. It is one of the most consoling features of the country that the more distant or unhealthy the station the better the shooting. This is a solace of the greatest value to the officer or official who may find himself, through the exigencies of the service, alone for a large period of the year. At his door is one of the most fascinating hobbies, one which appeals strongly to the majority of Englishmen, the first-hand observation of a variety of wild animals in their natural habitat.

The camera nowadays supplements and frequently takes the place of the rifle, and some really marvellous photographs have been taken. Volumes could be written, and have been written, on this fascinating pursuit, though unfortunately it is often the case that those who have had the greatest experience and the most thrilling adventures have a corresponding reluctance to share them with the rest of the world.

Duck and Sand Grouse.

In a lesser degree votaries of the shot-gun have opportunities for their prowess. The blessed Nile provides food and lodging for a wonderful variety of bird life.

Ducks of every conceivable kind are plentiful, and many a Khartoum sportsman rests his brain and replenishes his larder with those admirable birds to his great content.

The sand grouse, perhaps, may be said to give the greatest joy to the greatest number. This happily misguided bird persists in coming to water year after year in the same place, and on every Friday morning—Friday being the weekly holiday—perhaps as many as fifty guns may be seen by anyone who gets up early enough, lining the west bank of the White Nile from Omdurman to Gordon's Tree, waiting for the flight. Amusements are strenuous, and though it may savour of the luxury of English covert shooting to see a long row of men sitting on the bank waiting for the birds, still it must be remembered that these same men have started on the morning of their "day off" by 5 a.m., and that they will not be back before 11 o'clock. This may not sound much, but try it on a day with the temperature bordering on 110 degrees in the shade!

Polo. Polo is undoubtedly *the* game of the Sudan. The grounds are all at Omdurman, and all pure desert. The soil of Khartoum does not lend itself to polo grounds. Three days a week the players cross over in the Sirdar's steam yacht, a rebuilt relic of Gordon's fleet, always generously placed at their disposal, and after half an hour's run they arrive at the famous South Gate landing stage. Disembarking near the site of the Khalifa's prison, they have a ride of over two miles before arriving at the grounds, and there some forty players play their games on the Omdurman sand. Very hot and sometimes dreadfully dusty, this produces a prodigious thirst, and is perhaps the hardest exercise that can be taken. The quality of the polo is distinctly high, and though some of the players are well known at home, yet nowhere does the tyro meet with greater encouragement. There must be many who remember their former Sudan polo with affection. The journey back after a hard game is delightful. The sunset on the Nile has been described by many a graphic pen, and the pleasing feeling of having had a good game and real hard exercise, combined with the soothing effects of tea on board, make the cool journey all too short. There are several tournaments during the year, some for cups presented by British regiments who have been stationed in the past at Khartoum, a graceful acknowledgment of the sport enjoyed together.

Besides polo, there are also five race meetings yearly, confined to members of the Racing Club, who alone are allowed to ride, and a horse show with a most interesting and comprehensive programme.

Tennis is also a great stand-by, and forms a class of exercise which can be enjoyed even in the hottest weather, and also has the advantage of being a common meeting-ground for the stern and the fair sexes.

Golf in the Ruins of Omdurman.

Golf has ardent devotees of both sexes, and is the chosen game of the Governor General, who finds just enough time between work and more work for an afternoon round. There are now three courses, Khartoum, the most ancient, Omdurman, with ruins for hazards, the most varied.

So much for the daytime; in the evening, after a look in at the club, begin dinner parties, often followed by dances. A dance at the Palace is a delight to be remembered. Band, floor, and everything as good as can be, an absence of irksome ceremony, and a garden between dances, with its warmth and tropical scents, a thing to inveigle the susceptible to his doom!

These are only a few brief outlines of the other side of the hard-worked official's life, but may perhaps give a hint that the truth that complete change of occupation is the best rest is very well understood and appreciated.

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