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THE ANGLLO-EGYPTIAN SUDAN:

A COMPENDIUM PREPARED BY OFFICERS OF THE
SUDAN GOVERNMENT.

EDITED BY

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IN TWO VOLUMES.

VOLUME I.

(GEOGRAPHICAL, DESCRIPTIVE, AND HISTORICAL.)

(With eighty-two illustrations.)

LONDON:

PRINTED FOR HIS MAJESTY'S STATIONERY OFFICE,
BY HARRISON AND SONS, ST. MARTIN'S LANE,
PRINTERS IN ORDINARY TO HIS MAJESTY.

And to be purchased, either directly or through any Bookseller, from
WYMAN AND SONS, LTD., FETTER LANE, E.C.; or
OLIVER & BOYD, EDINBURGH; or
E. PONSONBY, 116, GRAFTON STREET, DUBLIN.

1905.

Price Ten Shillings.

The following general description of the country between Adarama and Kassala is taken from a report by Captain A. C. Parker, who traversed this country in April and May, 1901.

"Lying to the north of Kassala, and bounded on the east by the range of hills along which the frontier is delimited, and on the west by the river Atbara, stretches a vast plain of almost unbroken continuity.

"From Goz Regeb to a point on the river west of Kassala the country inland consists of, first, a broad strip of cotton soil, sparsely sprinkled with small trees and bushes. To the east of this there occurs a stretch of more or less sandy soil, supporting a coarse grass and a few stunted isolated trees until the fertile soil adjoining the Khor El Gash is reached.

"This khor, after passing the town of Kassala and receiving numerous small khors from the east, conveys its flood water in a more or less defined channel, or in some places channels, as far as Filik. Along its banks, north of Kassala, dom palms are replaced by thick tamarisk or tarfa trees, which continue most of the way to Filik, on nearing which they in turn are replaced by talh and other thick thorn scrub.

"A short distance north of Filik, owing to the extreme flatness of the country, the eastern channel disappears, and the water dissipates itself through the soil to a distance varying according to the volume of the flood water, its direction being roughly N.N.W.

"The opinion, still held by some, that the Gash water flows towards the Langeb seems untenable.

"The Odi plain which receives numerous small khors from the eastern hills is probably about the same level as the Gash plain, but there certainly appears to be sufficiently rising ground between, though hardly noticeable, to preclude the Gash reaching Odi.

"From Filik, following the direction of the Gash, the bushes which define its course gradually decrease until they become as scattered as in the rest of the plain, and all trace of its direction is lost.

"The plain still extends northwards, until at a point, said to be not far from Jebel Safra, it receives the waters from the Angwatiri and Godamaieb khors, which join here, and probably that of other khors flowing in a south-westerly direction from the rocky hills to the north-east. From these hills also many khors start in an easterly and south-easterly direction, which finally reach the Odi or the Langeb.

"From J. Sanai northwards, for some distance the country consists of large ranges of hills, separated by wide valleys, containing very often stretches of cotton soil in the wider parts, but close to the hills the ground becomes rocky and stony.

"From these valleys, the khors, some of which are lined with dom palms, trend in a south-westerly direction, but in nearly every case are hemmed in by sand hills, and are thus prevented from reaching the Atbara. The valleys, or rather basins, where the final exit is stopped, being usually selected by the Arabs to cultivate.

"Of these valleys the principal are Hegerib, Todabanob, and Hambokeb.

"Wells, the locality of which depend largely on the rainy season or local thunderstorms, are fairly plentiful throughout the whole of the country traversed by these khors, and supply water for numerous sheep and goats, and in some places a few cattle, grazed by Hadendoas of the Gemilab, Haikolab, Amerab, Shebodinat, and other tribes.

"A small party mounted on camels may travel through this country at any time of the year without fear of inconvenience from lack of water. After the rains, pools of standing water will be met with in many places.

"The Gash itself, according to native tradition, has an exit to the Atbara near Adarama, and it is very possible that the waters of the northern Gash plain, called by the Arabs Gash Dai, may have a channel meandering through the hills formed by the rush of water in exceptional years."

(b) KASSALA.

Kassala is situated on the right bank of the Khor Gash, 1,735 feet above the sea, and lies 15 miles west of the nearest point on the Italian frontier, which is near Sabderat. The twin Jebels, Mokram and Kassala, rise abruptly from the plain 3 miles to the east and south-east. The highest of the peculiar dome-shaped protuberances of the latter is 2,600 feet above the town, and is usually visible at a distance of 60 or 70 miles. There are several perennial springs in the mountain.

Beyond the fort built by the Italians, the barracks, and the various other Government buildings, etc., there are few brick buildings in Kassala, as the native part of the town is constructed chiefly of grass tukls. There are two or three fair stores kept by Greeks, where most tinned provisions and other small requirements are obtainable, and at least one of these is licensed to sell liquor. Town.

The normal garrison consists of one regular battalion, six (late Italian) 9 cm. Krupp guns, four Nordenfeldt, and four Gardner machine guns. In addition, there is a battalion of Arab irregulars, recruited locally, chiefly from Beni Amers, Garrison.

Hadendoas, and Abyssinians. It consists of 200 men, all of whom are mounted on either camels or mules. This battalion rendered good service during the late campaign, and, in peace time at any rate, are by far the most suitable troops for this part of the country. They are natural scouts and exceedingly mobile. A considerable number of irregulars could be raised here at any time.

Sheikh El Morghani.

Said Ali El Morghani, the youthful head of the Morghani sect whose home is the Khatmia under the north-west end of J. Kassala, has now taken up his abode at Omdurman, where, however, he is by no means so generally revered as in the Eastern Sudan. Said Ahmed, an elder brother, who was a prisoner during the Mahdia, now acts as his representative at Kassala. Said Ali's ancestors were Ashraf at Mecca, and settled at Kassala at the beginning of the last century.

Population.

The population of Kassala town in 1900 was 12,000; and the whole of the Nomad Arabs in the district were then estimated to number 6,000. In 1904, the total population of the town and the Nomads was computed to be 46,000. The townspeople are chiefly Halenga Arabs, who are excellent cultivators, also a mixture of Beni Amer, Shukria, Takruris, etc.

Water supply.

The water supply, which is from wells varying from 15 to 30 feet deep, is good and plentiful.

Cultivation.

The principal cultivation is the dura crop, raised on the land flooded* by the Gash. This dura is a large white species called "Taulib," and is harvested about January; it ranks in quality with the best "Mugad" dura of the Nile. At present the system of irrigation on the Gash is very primitive and wasteful. An improved scheme in accordance with modern ideas is under consideration.† A subsidiary rain crop (Naggad), harvested at the end of October, is also raised, but is not of much account. Crops are very liable to the attacks of extraordinary flights of very voracious small birds and also locusts. A very destructive species of "blight" occasionally devastates the crops. It is known as "El Asal" (*Aphis Sorghi*, vide "Report of Wellcome Research Laboratories—Gordon College—1904"). The rains are often barely sufficient to raise those crops dependent on them. Gardens irrigated by sagias and wells are numerous.

Rains.

The rainfall of an average year is very meagre.‡ During the Kharif, the period from June to October, rain of any kind rarely falls on more than 20 to 30 days. On perhaps half a dozen of these there may be very heavy thunderstorms. Rain, which almost invariably comes from the east, generally falls between 6 and 8 p.m., and is preceded by a wind of hurricane force, which usually brings with it a phenomenal wall of dust several thousand feet high and many miles in extent, which often takes an hour or more to blow past, during which time the obscurity and colour of the atmosphere reminds one strangely of the thickest of London fogs.

Climate.

The climate for eight months of the year, though hot in March, April, and May, when the thermometer not infrequently registers over 112° Fahr., is healthy. From July to October there is a good deal of malaria, especially during a favourable rainy season. This has been reduced a good deal recently by draining, and precautions against mosquitoes.

Trade.

The trade at present is not to be compared with that before the Mahdia, but is increasing; what export trade there is, comes from Gedaref. The imports *via* Suakin and Massawa are not of much importance at present; they are sugar and Manchester goods principally. By far the largest proportion of imports now comes *via* Suakin.

Transport animals.

The camel is the best animal for this district, both for riding and transport purposes. A good camel costs from £E.7 to £E.10. They are nearly always available for sale or hire, though in the rains they are not to be found in the immediate vicinity of Kassala.

Horses or mules, which are imported in small numbers from Eritrea or Abyssinia, cannot usually be hired or purchased. Horses are liable to be attacked by a species of horse sickness, which often ends fatally. The Abyssinian and Dongolawi breeds do best. A good riding mule costs from £E.6 to £E.8.

Posts and telegraphs.

There is a weekly camel post for both letters and parcels to and from Berber, also a weekly mail to and from Keren and Massawa, also a fortnightly mail to and from Suakin, and a weekly mail to Gedaref and Gallabat. Telegraph lines connect with Suakin, Gedaref, Gallabat, Massawa, and Addis Ababa. Communication is liable to occasional interruptions during the rains.

Serut fly.

During the "Kharif" the whole country south of the line Kassala—Asubri swarms with a wasp-like "Serut" fly, which bursts into life as soon as the young grass has sprouted and dies as the vegetation dries up at the end of the rains. This fly is most vehement in its attacks on all animals, including game, but camels suffer the most, and if exposed for any length of time to their bites, they rapidly lose condition, and will probably die from the effects.

Game.

In various parts of the districts, described in Section 4, the following varieties are found:—Elephant, rhinoceros, buffalo, giraffe, roan-antelope, kudu, waterbuck, tora hartebeeste, ibex, wild sheep (?), bushbuck (two (?) varieties), reedbuck (scarce); Abyssinian duiker, oribi, dig-dig, and the following gazelles:—Sommering's, Dorcas, Heuglin's,

* In 1903, under 2,000 feddans of cultivation were irrigated by the Gash flood.

† *Vide* Sir W. Garstin's "Report on the Basin of the Upper Nile." Foreign Office Blue Book, Egypt No. 2, 1904.

‡ 12½ inches (1904).

Isabella, and possibly Ruffrongs; also hippopotamus, crocodile, turtle, warthog, pig, wild ass, lion, leopard, hyena (two varieties), cheetah, serval; also various civet and wild cats, hares, wild dogs, baboons, and monkeys; ostrich, bustard, guinea fowl, francolin, sand grouse, geese, snipe, wild fowl, and quail.

Both rhinoceros and buffalo are rare.

(c) THE KHOR GASH.*

For at least 70 miles above Kassala the Gash has a sandy bed, which averages 100 to 300 yards in width, with strips of higher ground, covered with grass, and liable to be flooded in a good year, bordering it at intervals, especially at the bends. Outside these again, on what may be called the real banks, is an almost continuous fringe of dom palms and high grass, varying from 100 to 500 yards, and occasionally nearly a mile, in width. There is no definite track parallel to the khor on either bank, but the going on both banks outside the belt of dom palms is good. If desired, the bed of the Gash may be followed, though rather heavy-going, and corners may be cut off occasionally.

Year after year, in the dry season, water is found in certain well-known localities, usually 2 or 3 miles apart. The depth of the wells, which are revetted with brushwood, varies, according to the season and the flood, from 5 to 20 feet. The cattle and sheep are watered usually every alternate day from large mud basins (*duruk*), two or three of which are constructed near each well. There are nowadays no places between Kassala and Todluk where water stands in pools for any considerable time after the flood has subsided, as it is said to have done formerly at Saneit,† where, however, water is still found very close to the surface.

The Gash flood usually reaches Kassala during the first week in July, and brings down with it numerous fish, which are eagerly caught by the natives. It ceases to flow about the end of September or beginning of October. During the period when it is in flood it is occasionally unfordable for several days together. The Gash, like the Atbara, brings down a large amount of fertilising matter from Abyssinia. The discharge of the Gash in flood is estimated at about 100 metres cube per sec.

There are no permanent inhabitants living on the Gash, but in the dry season, thousands of Beni Amer cattle and sheep, and nearer Todluk, those of the Baria, are brought to it south of Kassala for pasture and water.

Many of the Beni Amer, Baria, and Baza in Italian territory, all of whom are bitter enemies of the Abyssinians, may be met openly carrying Remington rifles.

North of Kassala the people, watering from the Gash, are principally Hadendoas. For description of Gash, north of Kassala, *vide* p. 97.

(d) COUNTRY SOUTH OF KASSALA TO THE SETIT.

South of Kassala a flat and, except for the Gash, waterless plain, bounded on the east and south-east by the Eritrean hills from Sabderat to Sogada, extends to the river Setit. The whole of this plain is more or less covered with kittr and other thorn bush, which becomes particularly dense towards its southern and western extremities. With the exception of the Nomads living during the dry season on the banks of the Gash and Atbara and the few Hamrans on the Setit, the entire country is uninhabited.

Though a good deal of the country south of Abu Gamal is drained by several khors, chief of which are Gersat and Gullui which, having their origin in the Sogada hills, or even further east, join the Atbara at Khashm El Girba, nevertheless, the ground, being cotton soil, becomes at intervals in the rainy season boggy, and practically impassable, and water stands in ponds at several places, notably Umsiteiba and Mellawiya, on the roads from Kassala to Asubri and Fasher. At this season, too, most of the country is covered with tall rank grass, and travelling even along the roads is a thing to be avoided.

There is a perennial spring on Jebel Abu Gamal, 18 miles south of Kassala, from where there used to be a road, now overgrown with bush, *via* this Jebel to Um Hagar on the Setit.‡ A scanty water supply is sometimes obtainable from holes in the rock of Koraitib, 47 miles south of Abu Gamal.

(e) COUNTRY SOUTH OF R. SETIT.

Sudan territory, south of the Setit, bounded on the west by the Atbara, and on the east and south by the Abyssinian Inhabitants. frontier, running from the mouth of the Khor Royan (a tributary of the Setit) to a point opposite the Khor Abnakheir (a tributary of the Atbara), near Gallabat, is uninhabited, save for the one village of Gadabi, about 25 miles north of

* *Vide* Sir W. Garstin's "Report on the Basin of the Upper Nile." Foreign Office Blue Book, Egypt No. 2, 1904.

† *Vide* "Wild Tribes of the Sudan"—James.

‡ A road is now (1904) being cut from Kassala *via* Abu Gamal to Umbrega on the R. Setit.

fired, and the old and new are destroyed together; the ground is now clear and ready for sowing without further trouble, and thus cultivation is carried on with a minimum of labour. As the country is mostly forest, of course clearings have occasionally to be made. Two crops of dura are raised—"Naggad" and "Kurgi"—also a good deal of dukhn, which is ready for harvesting by the middle of October. Cotton is said to grow well, and in 1901 there were 800 acres of it under cultivation; this was four times as much as in the preceding year. It is expected that several thousand acres will be under cotton cultivation in 1905-6.

A few lime trees are now all that remain of the beautiful gardens which existed formerly on the banks of the Khor Abnaheir. The Dervishes are said to have ruthlessly cut down the fruit trees for building wood.

The garrison is usually a detachment furnished by the company of the Sudanese or Arab Battalion at Kassala. Garrison. There are also the usual civil police.

The rains begin here earlier and are much heavier* than at either Gedaref or Kassala. After the end of April heavy rain storms become pretty frequent and last till September or October. During this season the roads are very bad for travelling. The serut fly appears when the new vegetation has sprung up. Rains.

The same as Gedaref. Healthy, December to June; unhealthy, during the remainder of the year.

The main water supply is from the Khor Abnaheir, which averages 5 yards wide and 2 feet deep, but varies considerably according to the time of year, and becomes stagnant and foul towards the end of the dry season. There are also some small springs near the fort, the water from which, at this season, is more wholesome. Climate. Water supply.

Roads lead from here to Chelga and Gondar, Kwara, Dunkur, Roseires, Rahad, and Gadabi. (Vide Vol. 2).

There is a telegraph and post office at Gallabat.

Camels are the most suitable transport animals, unless the Abyssinian frontier is crossed, when mules or donkeys become desirable; for the journey to either Gondar or Kwara they are indeed indispensable. Trade routes. Telegraph offices. Transport animals.

When the Dervishes sacked Gondar, their transport consisted chiefly of camels, but very few are said to have survived or even to have reached there.

Camels are hardly ever procurable at Gallabat. No number of mules, donkeys and horses can be relied on unless plenty of notice is given, when the Abyssinians would probably readily supply a limited number.

British, Egyptian, or Turkish money is not as a rule accepted by the Abyssinians, who require to be paid in Maria Theresa dollars, which they value at PT.10½, but the Sudan Government at not more than PT.9½. Currency.

From El Damer to the line Roseires-Gallabat all the game mentioned under "Kassala" is found, with the exception of ibex, oryx, wild sheep, and klipspringer, and in addition rhinoceros and tiang (*Damaliscus Senegalensis*); bohor, or reedbeek, and *Gazella rufifrons* are common in places. Game.

SECTION 4.—COUNTRY BETWEEN BLUE NILE, DINDER, AND RAHAD, WITH DESCRIPTION OF THESE RIVERS.

The country between the Blue Nile and the Rahad and Dinder Rivers is at present (1904) practically uninhabited south of the village of Durraba on the Dinder, which is about the same latitude as Karkoj on the Blue Nile. General description.

Before the Mahdia, villages extended along both the Rahad and Dinder to nearly as far south as the Abyssinian frontier. Now, however, though inhabitants are slowly returning, there are but few villages even north of the Karkoj-Durraba line.

The country lying south of the latitude of Sennar being infested with the serut fly during the rainy season, the inhabitants, who are principally Kenana, Kawahla, Rufaa El Sharg, and Agaliin, are semi-nomadic; that is to say shortly before the commencement of the rains many of them trek with their camels, cattle, horses, etc., northwards across the Rahad to the well-known El Butana grazing district (see p. 103), in order to escape the fly, whilst only a few remain behind to cultivate their dura, simsim, and cotton. Tribes.

The whole of this country as far south as the Abyssinian frontier, in the vicinity of which the hills commence, is perfectly flat and covered with bush or forest of varying density, with here and there open spaces, often many miles in extent. The bush is thickest in the vicinity of the river banks and thickest of all along the Rahad.

The trees and bush most usually seen are tall, hashab, kittr, sayal, kurnut, heglig, laot, sunt, sidr, etc.

El Agab Abu Gin, Nazir of the Rufaa El Sharg Arabs, is in charge of all the country bordering the Dinder and Rahad (left bank) from the latitude of Sennar southwards. His residence is at Abu Hashim on the Dinder (left bank). El Agab Abu Gin.

Of the other villages occupied by his people the principal are Durraba, Bandana, Gileidat, and Lueisa. From the villages of Wad El Abbas and Sheikh Talha, both on the Blue Nile, roads lead to Gileidat and thence southwards along the Dinder to Durraba, beyond which point there is no regular road. From Senga and Karkoj, roads lead, *via* Abu Hashim and Deberki on the Dinder, to Hawata on the Rahad. South of this, as far as the Roseires-Abu Ramla track, the country may be said to be roadless and, owing to the cotton soil and bush, travelling across country is a trying operation for man or beast. There is a good road up the right bank of the Blue Nile from Wad Medani to Famaka. Communications.

* Total rainfall, January to October, 1904, 34.6 inches.

Khor Um Degul, or Agaliin, or Mehara, which lies between the Blue Nile and Dinder, and joins the latter near Deberki, was formerly thickly populated and cultivated by the Agaliin; it was, however, until 1902, quite deserted. A few villages are now said to be springing up along it, and wells are being opened. There are many tall and hashab gum trees in its vicinity.

North of Sennar-Gileidat villages are more numerous along the Rahad, Dinder and Blue Nile, though there is no great extent of cultivation.

Game.

In this district, or rather in the southern portion of it, the following species are found:—Elephant (Abyssinian variety, with small tusks), buffalo, rhinoceros, giraffe, roan, kudu, waterbuck, tora hartebeeste, tiang, reedbuck, ariel, gazelle, oribi, bushbuck, warthog, bush pig, lion, leopard, hippopotamus, crocodile, etc.



ON THE BLUE NILE.

THE BLUE NILE.*

General description.

The Blue Nile rises in the Abyssinian mountains about 60 miles south of Lake Tsana (altitude of Lake Tsana, 4,800 feet). Its source was discovered by Bruce in the year 1760. After flowing northwards into the lake at its south-west corner, it finds an exit† again to the south-east, and, after making a big bend to the east, it curls round

* *Vide* also p. 19, and "Itinerary of the Blue Nile," Vol. II.; also Sir W. Garstin's "Report on the Basin of the Upper Nile," Foreign Office Blue Book, Egypt No. 2, 1904.

† Its course through the lake is said to be plainly discernible.

Crops. Generally speaking, the ground is cleared in April. Crops are sown in May, and reaped in November–December. One crop a year.

Indian corn is grown extensively in the plateaux. Sown in April, it ripens in August. *Sorghum dura* is grown universally. The Dinkas, living near the marshes, sow this at the end of March, it ripens in October, and has a short stalk 4 feet high. Everywhere else it grows 12 feet high and ripens in December. Ground nuts and pumpkins are also universally grown, especially by the Dinkas. Simsim, telabun, dukhn, and various vegetables are met with in the habitations of other tribes. Locusts play great havoc with the crops, and the natives, especially the Dinkas, are too lazy to combat them. The crops are increasing in extent, especially in the western portion; each military post cultivates a certain amount, but it is expected that the natives will soon produce enough (bar accidents and drought) to supply the troops and any demand that may be made on them.

Minerals. Iron is very plentiful almost throughout the province, and is extensively worked (*vide* p. 160). A recent analysis of the iron ore gives a percentage of 47 per cent. of pure iron.

Copper is only found at the rich mines of Hofrat El Nahas, near the southern borders of Darfur. It lies in the midst of a deserted country, and has not been worked for a long time. It had not been visited by Europeans (until Colonel Sparkes's recent journey, February, 1903), since 1876 (Purdy).* According to recent analysis of a specimen the ore is a silicate and carbonate, not a sulphate, of copper, containing 14 per cent. of pure metal. Although there is an immense quantity of this ore, its distance from civilisation and the obstacles to transport will render its development a matter of considerable difficulty for some time to come. In places, it sticks up in ridges above the surface.

Currency. Different tribes and districts have a fancy for various articles of barter. "Genotor" (Gianotta) beads (round, black beads with white and coloured spots) are useful anywhere. With the Dinkas, small white and red beads ("Suk-suk") and brass wire, especially in the form of bracelets, are acceptable; but cloth only holds a steady demand on the direct routes to Government posts, where the inhabitants are thrown into contact with civilisation; it is, however, rapidly becoming more popular, and in some parts of the country is preferred to beads. Jurs like beads, brass and cloth. Golas and Bongos prefer cloth, which also obtains the best value from the Nyam Nyams. The Dinkas in the north have been in the habit of exchanging ivory for cattle with the Baggara Arabs.

6. Climate and Hygiene.

The rainy season† begins in April and ends in November; December, January, February, and March are the dry months, when the humidity is slight, though there is always a certain amount of dew. From the end of April till the middle of November rain falls, on the average, one day out of three, generally in very heavy showers lasting for two or three hours at a time. In the early months terrific thunderstorms accompany the showers. The shade temperature in the dry season shows an average maximum of 98° and a minimum of 59°. In the rainy season the maximum in April, May, and June averages 89°, and from July to December 85°. The minimum average during these months is 70°. During the rains the humidity is excessive, and the dews exceedingly heavy.

Sickness. About 80 per cent. of the sickness in the Bahr El Ghazal is due to malaria. It attacks Europeans and Egyptians more severely than blacks.

The frequency and severity of this disease varies with the season and also with the locality. June and July have proved the most unhealthy months; the rainy season being then at its height. From December to March there is very little sickness. The natives state that some years are far more unhealthy than others, but this does not seem to depend upon the amount of rainfall. The most unhealthy stations are Wau, Meshra El Rek, and Tonj, all of which are built close to the river banks, whilst Rumbek and Deim Zubeir, which are some miles from a river, and watered from wells, are comparatively healthy. It is a noticeable fact that the natives never build villages near the river bank, but generally at least a mile inland; they also usually drink from wells. This is probably done to avoid mosquitoes, and therefore is a possible reason for the small amount of fever amongst them. Mosquitos cannot breed in shallow wells from which all the water is drawn several times daily. By selecting these positions for their villages they are also removed from the marsh, which is usually found on one or other bank of the river. Egyptians are more susceptible than Europeans, and the Sudanese from Khartoum more so than natives.

Varieties of fever. Although the ordinary periodic types of fever are met with, and easily combated by quinine, a malignant type is far from uncommon, and is a very serious trouble. The patient may have two or three distinct attacks of fever in one day, and often on two or three consecutive days, leaving him weak and unfit for duty. Vomiting is a common accompaniment, and sometimes continues for two days. The stomach refuses food or medicine, and quinine has to be injected subcutaneously. Drugs, however, seem to have little effect on the course of the fever. The after effects

* Natives of the district deny that it was ever visited by Belgians from the Congo Free State between these years, or in 1894, as has been stated.

† Rainfall at Wau (1904) 25 to 30 inches.

met with are anæmia, rheumatism, neuralgia, and dyspepsia. The most serious complication, however, is "blackwater fever," which is a hæmoglobinuria, occurring in a patient saturated with malaria. The red-blood corpuscles are destroyed by the action of the malarial parasite, and the hæmoglobin thus set free is passed in the urine, giving it its characteristic port wine colour. The patient becomes terribly weak, has acute pain over the stomach, vomits frequently, and cannot retain any nourishment, the heart becomes very feeble, and death only too often follows. At present there have been as far as is known, since 1900, about eight cases, with only two recoveries; it does not appear to attack natives at all.

Guinea worm is common amongst the natives and Sudanese. It has been met with all over the country, from Meshra El Rek to the Nyam Nyam country. It appears in June and July, and is often the cause of ankylosis of the joints. From observations made in 1901-02 the period of incubation would appear to be a long one—probably 10 or 12 months. At least one European has developed it. Guinea worm.

Boils are common and appear in epidemic form, chiefly attacking the hands. Boils.

Dysentery in its true form has not been met with. The water supply at all stations is good. Dysentery.

Small-pox occurs occasionally amongst the natives and carries off hundreds. An outbreak occurred amongst Tembura's Nyam Nyams in the winter of 1903-04. Small-pox.

Phthisis in all its forms is common, and is believed to be responsible for a large percentage of the mortality amongst natives. September, October and November are the months in which it is most prevalent. Phthisis.

Night blindness is common.

Beyond mention of the great frequency of hydrocele and hernia amongst the natives, there is nothing else that calls for special remark.

Mosquitos are not very numerous on the dry plateaux of the table-land and the lower steppes during the dry season, but abound during the rainy season near the rivers. Near the sudd, and on it, they are always to be met with, but not in any quantities away from the rivers. At least two out of six specimens sent home were found to belong to malaria-bearing species. Mosquitos.

A species of the tsetse fly, identified as *Glossina morsitans*, was discovered in 1903 (April) by Major G. R. Griffith, D.S.O. Beyond its often fatal attacks on animals, it seems otherwise harmless. Sleeping sickness is unknown in the Bahr El Ghazal, though fatal cases have occurred in the Lado enclave, which adjoins it. Tsetse fly.
Sleeping sickness.

7. Forestry.*

The Bahr El Ghazal province is, unfortunately, no exception to the general rule which prevails in the Sudan. Traces of fires are clear everywhere, from the grass lands near the rivers to the innermost portions of the uninhabited forest tracts to the north-east and east of Deim Zubeir. The largest fires are started in the grass lands near the rivers in order to provide tender herbage for the cattle. These, as they sweep inland, are fed by others, which are made to clear the country near the villages, and they are then carried on until they rush on and penetrate into the forest themselves. In the forests, where the paths get overgrown with grass, travellers fire the grass, not only to clear the way, but to provide against coming unexpectedly on wild animals. Further, fires are lighted for hunting purposes. The reed rat, which lives in long grass near water, and which is generally relished for its meat, is hunted by setting fire to the grass, and the hunting of other animals, including the elephant, is accomplished in a similar manner. It is evident that before such fierce fires seedling growth is killed out; that saplings and young trees are killed or mutilated, and that larger trees themselves must suffer, especially on the outskirts of the forests. So heavy is the toll taken that more wood is destroyed each year than is produced by the increase in girth and by the birth of new trees in places respected by the fires once in a way. In other words, the capital is being eaten into, the forests are deteriorating, and, unless protected, will ultimately disappear. Apart from purely economic reasons this is a prospect which is not good to contemplate if the effect of such a denudation is considered. Fires.

As before mentioned, the country can be divided into three divisions, according to the amount of drainage. Each of these divisions has its own characteristic vegetation:— Forest zones.

The ambach (*Herminiera elaphroxylon*), which in places forms dense covers, and on the upper Bahr El Ghazal almost supplants papyrus, is the only plant which may claim to form forest vegetation. It may in future be of use, owing to its lightness, in floating timber down the river. Swamp vegetation.

On the land, which is under water annually at flood time, forest vegetation is scanty, and such trees as there are are usually perched on the top of termite hills. Such are the *Sarcocephalus esculentus* and *Mitragyne Africana* (*Rubiaceae*), the ardeib, dabka, gughan, the small-leaved inderab, and, where the soil is poor, *Euphorbia candelabrum*. Large expanses of country are treeless, owing to fires and heavy felling. Lands not always submerged.

* Taken from a report by Mr. A. F. Broun, Director of Forests to the Sudan Government.

Highland forests.

On the higher ground the chief ones are tamarind and gughan, with sidr bushes, tall (acacia), and tall-beida forests, um shutur, zeitun (edible fruit), abu khamera and heglig, and occasionally habil.

The above trees are also found on the higher land, but generally near water or in clay soil and in smaller quantities. The highland forests, however, differ largely from those on the lower lands, there being little acacia or thorny growth. Among the largest trees are the nwana (tanning bark "mudus") and abu surug (tanning bark), kuru, riang or bei, shanda and koba (in best parts of forest), digdig (sweet yellow flowers), homra (large tree, allied to mahogany, also called homraya or murraya), and lulu (blackish scaly bark and tufted leaves, gutta-percha tree, above described).

The quality of the forests is at present not high. The best forests are those found in the broad, uninhabited stretch between Dein Zubeir and the Bongo, but even here the frequency of fires has prevented the stock from being at all uniform. In other places, where fires are still more frequent, and where there are traces of former cultivation, the stock is of a much more patchy character, and degenerates into curtains of forest surrounding blanks, or into mere scrub composed of contorted shoots of habil, dorut, kalto, akan, grewia, etc. It is, however, satisfactory to note that, even in such fireworn areas, there are still to be seen scattered here and there enormous trees such as shande, homra, bei, nwana, etc. But at the same time it is also a fact that, except in the case of koba, which reproduces itself fairly freely, the other large trees are not at all largely represented among those of younger generations, notwithstanding the fact that most of them seed abundantly. The most that can be said of these forests is that the larger trees are very fairly represented and that with proper treatment and protection some magnificent reserves could be evolved.

Principal timber trees.

Homra: enormous size, would make a fine cabinet wood. Pinkish inside, but soon turns mahogany brown; found on ironstone.

Heglig: not very tall, but 6 to 8 feet in girth. Timber durable and not liable to attack by white ants; lowlands, clayey soil.

Koba: graceful, rounded crown, flat pods, abundant, good brown building timber, much used by Jurs; highland.

Digdig: large tree, straight bole, sweet yellow flowers, leafless during the cold season, strong yellowish timber; highland.

Ardeib: grows large, timber of very old trees is beautiful, mottled black and white, much valued in cabinet trade and also for its fruit; clayey soil.

Abu surug: large, fine dark red wood, capable of good polish, used chiefly by iron smelters for charcoal, bark rich in tannin; common in highlands.

Nwana: very large and abundant, white timber, not strong, but useful for planking, seed pulp sweet and edible, bark ("mudus") good for tanning; ironstone.

Silag: common, tall, graceful, birchlike, white timber fairly durable, much used for building, leaves probably rich in tannin; highland tree.

Gughan: ebony family, sometimes very large, fine dark brown timber which turns black on exposure, much used for gun stocks; clay soil.

Abnus: Sudan ebony (not true ebony), crooked and thinnish; scattered on rocky soil in highlands.

Zeitun: teak family, large size, white wood, not strong; lowlands or clayey soil in highlands.

Bamboo: apparently strong and good, used for rafts and roofing; line banks of khors in highlands.

Fibres.

The mottled-leaved *Sanseveira guineensis* is found all over the portion of the province visited. It yields a strong and durable fibre. Strong jungle ropes for building are made with a species of vitis growing in the highland forests, while grewias and sterculias yield strong best fibre. In the Nyam Nyam country the bark of a fig is used as cloth.

Edible fruits.

Many trees in these forests yield edible fruits, but most of them are poor and insipid, with the exception of lulu, which has a fruit, the pulp of which is not only eaten, but the kernel yields an edible oil which is said to be a good substitute for "ghee." Klato has a not unpleasant acidulated fruit, and the fruits of both apwana and odilo are also eaten. The pods of the nwana contain a sweet farinaceous pulp; and a gardenia has a large ovoid fruit, which is not unlike a very inferior apple. The fruit of zeitun is also eaten, and when roasted and ground it makes an excellent substitute for tea.

Iron smelting.

It is impossible to omit mention of a very important industry which is connected with, but would be impossible in this province without an adequate supply of fuel. Iron smelting is carried on with a certain activity by Jurs and Bongos. The ironstone and laterite, which form the upper layer of rocks over a great portion of the province, are very rich in iron*; and, with proper working, all the needs of the Sudan, and possibly also of Upper Egypt, could be supplied from this province. For this, however, it will be necessary to work the forest in a systematic manner in order to make sure of a continuous supply.

* Analysis of ore—47 per cent. of pure iron.

8. *Communications and Transport.*

The chief difficulty to contend with in the Bahr El Ghazal is that of transport. During the rainy season (May or June to November) since a large portion of the country is flooded, it is almost impossible to get about. Stores have, therefore, to be laid in beforehand during the dry season. Transport.

Between Meshra El Rek and Wau the direct road is practically closed from the middle of June to the middle of November, though communication by single individuals is possible by a roundabout route during this period.

Between Wau and Rumbek the road is difficult, though never entirely closed, from August to November. The same applies to the Wau-Deim Zubeir road.

Between Rumbek and Shambe (on the Nile) the road is impassable for animals from the end of April or May till early December. In October, 1903, nearly the whole of this route was actually under water.

On all the above-mentioned roads, however, carriers with light loads can get about, though with difficulty, all the year round.

As thick bush and forest prevail almost throughout, the routes everywhere are merely narrow tracks with tortuous windings, which can only be traversed in single file. When the grass grows long, high overhead in the autumn, the tracks are not easy to find. The main Government routes, however, have been much improved.

Carrier transport is the most suitable, but carriers in great numbers are not easily procurable and are never obtained from the Dinkas. The Golos, Bongos, Ndoggos and Nyam Nyams are willing to carry. The ordinary load for a man is 40 to 50 lbs. besides his own food.

Mules and donkeys can be used along most of the routes. Mules, especially the Abyssinian breed, answer best. Donkeys are useful but die in great numbers. Camels have been successfully employed from Shambe to Rumbek and from Meshra El Rek to Wau and Tonj river post during the dry season; but the rainy season does not agree with them, and nearly all have died. In the rainy season camels cannot move, and mules and donkeys only with difficulty. The chief causes of mortality amongst all transport animals are overwork, fly, bad roads and poisonous grasses. It is doubtful how far the climate shares in causing these losses. Practically all transport animals have to be brought into the country. Generally speaking, mules and donkeys thrive better than camels. Mules.
Donkeys.
Camels.

Rough carts drawn by oxen are being tried, and have given good results so far. Each cart carries a load of 600 lbs. Pack oxen are slow, and require much time for grazing. Oxen.

In the rainy season a fly, resembling the common horse-fly, attacks horses, donkeys, and mules, and cattle in certain rocky districts. At Wau this pest is particularly prevalent. The animals generally sicken and die in a fortnight. This fly is well known to the natives. As before stated a species of Tsetse fly has been identified on the Bongo River, *vide* p. 157. Fly.

Below Meshra El Rek steamers ply on the Bahr El Ghazal, but from the end of April till the end of August they are stopped at the mouth of the Jur, or even to the north of it. Light craft can generally get through to Meshra El Rek during that period, but with much difficulty. River
transport.

The Jur river is now open to navigation for small steamers and light craft from August till the end of November, as far as Wau, and even to Rafili, the sudd having been cleared to a great extent from its mouth to Wau. During the rest of the year it is only navigable for about half this latter distance from the mouth. In June, in spite of rains, it is almost dry (*see* p. 154).

9. *The Tribes of the Bahr El Ghazal.*

The DINKAS occupy the lowlands in the north of the province, their southern limit being the edge of the table-land, where the good grazing and pasture land terminates. General.

On the lower slopes of the ironstone plateaux, between Rumbek and the Bongo river, there are many Jur settlements. Between the Tonj and Bongo rivers are a few villages of the BONGO tribe, which have survived the raids of the NYAM NYAMS from the south. GOLOS, NDOGGOS, and KREICH, who formerly held the country west of Wau to Deim Zubeir, have been driven further north by the same powerful tribe, and have taken refuge in the district between Wau and Chamamui, where they are now more or less under the protection of the DINKAS. South of these tribes, and separated from them by a broad belt of uninhabited forest about 100 miles wide, are the NYAM NYAMS.

In the west the MANDALLA tribe live in Telgona district, but the ruling classes in that district, including Sultan Nasser Andel, have Arab blood in them, introduced through their relations with the tribes of Darfur. The same may be said of the FAROGE tribe, ruled by Sultan Musa, who reads and writes Arabic. To the east, on the lower slopes of the plateaux, are the MITTU, WIRA, and MADI tribes.

Dinkas. THE DINKAS.—There is no ruling chief, but every little district has its own head man or sheikh, and fighting frequently occurs between neighbouring districts. A man is powerful in proportion to the number of cattle he owns and the size of his family. Head men may own up to 30 or even 40 wives, but six is a fair average. The great object of the Dinka is to acquire cattle, to which they pay a kind of reverence. Owing to in-breeding the produce of cattle is not numerous. The yield of milk is insignificant. The price of a wife* varies from 25 to 40 head of cattle. A head man is generally succeeded by his eldest son; and in this respect the Dinkas are generally loyal. In character they are savage, deceitful, and treacherous, but their domestic ties are strong. Tending flocks and herds is the occupation of the Dinka. They are very lazy, and cultivate only small crops; but they levy taxes of corn and produce on the neighbouring Jurs and Golos.

The Dinkas are poor sportsmen. They do some fishing, chiefly with spears in the pools of rivers during the dry season, but are bad trackers and hunters of big game. Spears, long in shaft and blade, made by the Jurs, and wooden clubs of hard wood or ebony are their weapons. Tobacco is grown, chiefly for chewing, and occasionally for smoking. Most of the men carry a plug of tobacco behind the ear.

Dura crops ripen in September in the low-lying areas, being sown in May. Lubia (beans), pumpkins, and monkey nuts are also cultivated. Cow dung is used for fires. The ashes of charcoal and cow dung are rubbed in the hair, and all over the body by the cattle owners and young warriors.

The Dinkas are a tall, slim race of men, 5 feet 9 inches being a fair average height, and the women about 5 feet 7 inches. The men wear no clothing, but fantastic head-dresses decked with ostrich feathers; they are fond of beads as ornaments. The women wear numerous earrings of brass and a leather apron fore and aft. Brass bracelets are worn by both men and women; ivory bracelets by the men only. Compare also pp. 126 to 130 and pp. 132 and 144.

Jurs. THE JURs.—The JURs are very like the Dinkas in appearance, the skin being perhaps a shade lighter, but in habits they are more civilised and peaceful. They are said to have originally been a branch of the Shilluk tribe. Their language is quite different from the Dinkas, but most of them speak and understand the language of the latter, to whom they are subservient.

Living on the northern slope of the ferruginous table-land, where ore is easily obtained from the surface, the Jurs practise iron-smelting, with small furnaces about 4 feet high from the ground. "Malots" (small hand-trowels used for turning the soil), spears, cowbells, and axes are made in this way.

Dura is cultivated extensively, but is later than the Dinka crops, ripening in November. This may be said of all the dura grown in the plateaux and higher ground away from the marshes.

The Jurs understand tracking, and are accustomed to setting rough traps for lion, leopard, and hyena.

The women, like the Dinkas, wear leather aprons, bracelets and anklets of brass or iron. A wife costs from 40 to 50 malots, or 20 or 30 sheep and goats. The men are fond of clothing.

Golos. THE GOLOS.—The Golos are an intelligent, active race, willing to learn and to work.

The cultivation of crops is their chief occupation. Besides dura and Indian corn they grow telabun, dukhn, lubia, simsim, onions, sweet potatoes, water melons, pumpkins and "bedingan." They keep a few sheep and many fowls, but no cattle.

The huts are well built, with ventilation between the wall and roof, and are clean both inside and outside.

"Malots" (iron hoes) are bought from the Jurs for honey, skins, labour, etc. A wife costs 40 malots.

The men are fond of clothes, and are generally clad like the Sudanese over the rest of the Sudan. They are fairly skilful weavers, using the cotton of the country, which, however, is not extensively cultivated. The women, on the contrary, are content with a bunch of leaves fore and aft, but are fond of beads.

The Golos are good sportsmen and trackers. They possess a fair number of guns, chiefly old traders and Remington rifles, but have very little ammunition. Bows and arrows and elbow knives are other weapons used.

Bongos. THE BONGOS.—The Bongos have the same occupations and appearance as the Golos, but are rather shorter and more thick-set.

The women wear a large circular stone on the upper lip or a wooden plug pierced through the lower.

Decimated by the Nyam Nyams and slave-traders, very few of them practise the crafts that they were formerly skilled in. Like the Jurs, they are accustomed to smelting ore and working in iron. Their dexterity in wood carving is shown in the various utensils, stools, spoons, etc., which they still make. Great attention and trouble is devoted to basket work and weaving grass mats.

The Bongos are fond of music, and play with string and wind instruments.

Ndoggos and Kreich. THE NDOGGOS AND KREICH.—The Ndoggos and Kreich are similar to the Golos and Bongos in appearance, but not so comely as the former and not so short as the Bongos. They are slightly fairer in skin. Having formerly lived prosperously in the districts where the old Government posts were established (Deim Zubeir, Deim Bekir, Deim Idris,

* Compare pp. 128 and 145, price of wives amongst Dinkas at Bor, and amongst the Shilluks, p. 193.

Wau, and Jur Ghattas), these tribes, Dinkas excepted, clearly realise the protection and other benefits accorded by a civilised Government.

THE NYAM NYAMS.—The Nyam Nyams or Azande are the most intelligent, keen and well-ordered tribe in the Bahr El Ghazal province. Nyam Nyams.

The tribe—covering, roughly, the south-west third of the province and a portion of the Congo Free State and Haut Ubangi to the south and west of the Nile-Congo watershed—is split up into five districts, each governed by a chief, holding absolute power, and these chiefs form two factions, which constantly quarrel.

Tembura, Zemio and Sasa make the western faction ; Ndoruma and Yambio the eastern.

Colonel Sparkes, says in the account of his patrol to Tembura's country :—

“Tembura is a shrewd, intelligent man, anxious for progress and development, and the Nyam Nyams generally are far superior to any other people I have met up here.

“Tembura's standing army, which is quartered round him, consists of about 4,000 men, of whom 1,000 have rifles or guns of sorts, and the rest spears, bows and arrows. They look after and handle their guns exceedingly well, and have been taught a certain amount of drill by the French.

“Besides quantities of dura, the Nyam Nyams grow bananas, limes, tomatoes, sweet potatoes, sugar cane, manioc, onions, and many other sorts of vegetables. Excepting a few of the head men, they have no cattle, sheep or goats, though quantities of fowls are kept everywhere.

“Yambio has the largest number of people under him, but is the least civilised, never having been brought into direct contact with Europeans, as have the others.”

The Nyam Nyams are great hunters, and all the chiefs possess a considerable quantity of ivory. The men wear well-woven straw hats, with cock's feathers, and loose breeches made of “Roko” bark.

The women are clad like the Golos and Bongos, but are more reserved and retiring than the latter. Both men and women dress their hair, grown long, in various styles. Beards are cultivated and are greatly admired if long.

Of cannibalism amongst the Nyam Nyams there is not much heard, but it is a fact that they eat their enemies who have fallen in battle and those who die. They eat dogs when they can get them. Schweinfurth considers this custom as allied to cannibalism.

Lighter coloured than the other tribes, they consider themselves “white men.”

Both Tembura and Yambio have a fine country, perhaps the cream of the Bahr El Ghazal, well watered by flowing streams, undulating, and growing many lulu, banana, and other fine trees. The country teems with many kinds of game : elephant, eland, rhinoceros, and buffalo all being numerous, the former especially so. The Nyam Nyams manufacture a white cotton cloth, similar to fine sacking. They are practically all clothed, and would probably readily purchase cloth. Country, etc.

Their arms are bows, arrows and spears, but both these sultans now possess a considerable number of rifles.

They were formerly, in the old Government days, converts to Islam, but they (Tembura at any rate) both now merely believe in the existence of a God, without participating in any form of religion.

THE MITTU, MADI, AND WIRA TRIBES.—These tribes, living on the eastern border of the Nyam Nyams, resemble the Bongos, but are physically inferior to the latter. They have suffered too, in the same way as the Bongos, from the raids of the Nyam Nyams. Mittu, Madi and Wira.

The Madi and Wira tribes are really sub-tribes of the Mittu, and they all speak the same Mittu dialect.

Regarding the teeth of the different tribes :—

Jurs and Dinkas extract the lower incisors ; the Nyam Nyams file the upper incisors to a point ; Golos, Ndoggos, Bongos, and Belandas file the upper incisor only on the inner aspect. But many of the latter, who have been brought up in the Nyam Nyam country, have the tooth-marks of that tribe. In fact, the tooth distinction is becoming less characteristic, owing to interchanging of tribes. Teeth.

10. Game.

The following is a list of the game which is to be found in the Bahr El Ghazal province :—

Elephant (numerous throughout).	Hippopotamus (in all rivers).
Buffalo.	Roan-antelope.
Eland exist in the higher plateaux, near Wau and Deim Zubeir, and the Situtunga is said to be found in the marshlands of the Jur River.	Waterbuck (throughout).
Giraffe (in eastern and north-western portions).	Mrs. Grey's waterbuck (<i>Cobus Maria</i>) (swampy grass land on banks of Jur and Bahr El Ghazal Rivers.)
Rhinoceros (throughout).	Tiang.
	Jackson's hartebeeste.

White-eared cob.*	Great bustard
Bushbuck (throughout).	Ground hornbill.
Reedbuck (in neighbourhood of rivers)	Guinea fowl.
Oribi.	Nile goose.
Duiker.	Partridge.
Wild boar.	Rock fowl.
Wart hog.	Sand grouse.
Lion (throughout, but rare).	Snipe.
Leopard (throughout).	Spur fowl.
Ostrich.	Spur-winged goose.
Comb duck.	Whistling teal
Florican.	White ibis.

II. *Religious Beliefs among the Natives of the Bahr El Ghazal.*†

In making enquiries as to religious beliefs among the people here, one is met at the outset by two difficulties. The first and greater is the reticence displayed on such subjects by the natives, and the second is that the interpreter, being invariably an Arabic-speaking native who has with his Arabic acquired the Moslem faith, is liable to colour his translations with ideas of his own; partly out of shame for the beliefs he has discarded, and partly from his anxiety to tell you what he thinks you expect. Perseverance in this line of enquiry is, however, well repaid, as the primitive religions of the tribes in the Bahr El Ghazal are most interesting and suggestive.

The Dinkas, though the most difficult of all to approach on such subjects, appear to have a most elaborate list of gods and demi-gods. At the head of the Divine community are Deng-dit (Rain Giver) and Abók, his wife. They have two sons, Kûr Konga, the elder, and Gurung-dit, the younger, and a daughter called Ai-Yak.

Their devil is called L'wâl Burrajók, and is the father of Abók, the wife of Deng-dit. There are also other relatives.

Their story of the origin of mankind (or it may be of the Dinka tribe) is curious and poetical. Deng-dit gave to his wife, Abók, a bowl of fat, and she and her children, softening the fat over the fire, proceeded to mould from it men and women, in the image of gods. Deng-dit warned her against L'wâl (the Shaitan), who was suspected to have ill-intentions towards Deng-dit. But Abók forgot, and with her children went to gather wood in the forest. There L'wâl found the bowl, drank the greater part of the fat, and from the remainder proceeded to mould caricatures of men and women, with distorted limbs, mouths, and eyes. Then, fearing the vengeance of Deng-dit, he descended to earth by the path that then connected it with heaven. On discovering the result of her neglect, Abók hastened to her husband, who, greatly incensed, started in pursuit of L'wâl. The latter, however, had persuaded the bird Atoitosh to bite asunder with its bill the path from heaven to earth, and thus escaped from the Divine wrath.

In spite of this complicated mythology, the Dinkas appear to be very indifferent to religion as an active principle in life. They are without any plan of prayer, and though they assert that their forefathers made great sacrifices to God, the present generation thinks twice about parting with a goat—to say nothing of a cow—for sacrificial purposes. Sacrifices constitute, however, their only attempts at intercourse with God. In fact, they seem to regard him not as a being likely to confer benefits, but as a destructive power to be propitiated, if possible.

The Golos also believe in male and female deities, called Umvili and Barachi, respectively. This couple is said to have originated the human race, and to be the parents of mankind. This belief is, I think, common to the Golo, N'Doggo, Shere, and Belanda tribes, and possibly also to the A-Zande or Nyam Nyams.

They have vague ideas as to future bliss for worthy, and punishment for evil, doers; the execution of the latter is entrusted to a spirit called Ma-ah, who corresponds to Shaitan, but is the servant rather than the enemy of God; some of the Golo songs in common use are of the nature of moral exhortations, directing the people to hear the voice of God.

Like the Dinkas, they do not pray to God, but attempt to appease him with sacrifices of chickens. These sacrifices are rather one-sided, as the procedure is to kill 20 chickens, cook and eat 19, and throw out the twentieth for Umvili.

Golos and Dinkas both associate the ideas of reverence and divinity with the sky, and of malignity and punishment with the bowels of the earth; pointing upwards to their gods and downwards to their devils. This association is, I

* Very plentiful in east, and along banks of Jur and Bahr El Ghazal Rivers.

† *Vide* also pp. 197, &c.

believe, universal, and has probably its origin in Sun worship. The natural human instinct for religion is probably as deeply rooted in the Bahr El Ghazal as elsewhere, and manifests itself perhaps in the readiness with which these tribes embrace Islam, when they learn about it in Sudanese regiments or as servants to Moslem masters.

They would seem to offer a hopeful and legitimate field for judicious missionary work,* as they are far from being the savages, destitute of ideas and beliefs, that they appear on a superficial view.

12. *A Short Dinka and Bongo Vocabulary.*†

English.	Dinka.	Bongo.	English.	Dinka.	Bongo.
Bad	Aragj.		Meat (flesh)	Rînk	Mihi.
Beads	Gwet.	Kira.	Milk	Kyap or Tia.	
Boat	Aryan	Kobbu.	Morning	Miak.	
Bracelets	Melang	Tilu.	Moon	Pai.	
Bread	Râb	Mun.	Much	Ajwid.	
Bring	Bei	Gimma.	Near	Atiok.	
Brother	Wakmat	Guma.	Night	Akân.	
Buffalo	Anyar	Kobi.	Nile	Warr.	
Bull	Tono Wong.		Oil	Miuk yum.	Yabumulla.
Butter	Miuk-chak	Dibusha.	Path	Kwërr.	
Cloth	Alad	Mabiu.	Pool	Auöl.	
Clothes	{ Bwam. Bium. Bum.		Porter	Munkinashiel (a).	Budu tukba.
			Raid	Kito tora.	
			River	Kjir.	
Come	Baa	Aiba.	Salt	Awai.	Taddu.
Cow	Wong.		Sheep	Tup or Amäl.	Minya.
Crocodile	Anyang	Hyango.	Sheikh (headman)	Baindit.	
Day	Akol.		Star	Kwel.	
Donkey	Akajaa.		Spear	Tong.	
Dura (bread)	Râb	Mun.	Start	Gerüd.	Tubba terch.
Elephant	Akôn	Kiddi.	Stone	Kur.	Landa.
Evening	Aten.		Stop	Kâja.	
Egg	Tong.		Station (post)	Lobai.	Indebba kor.
Far	Amet.		Take	Muk.	Tobba.
Father	Wadet	Bukâbbada.	Tobacco	Tâb.	Tâb.
Fire	Mach	Fudda.	To-day	Akoli.	
Giraffe	Mir.		To-morrow	Miäk.	
Girl	Nia.		Track	Dulik.	Kunga.
Give me	Bidègin	Wadi gimma.	Tree	Amat.	
Goat	Kaiou.		Village	Pâuda.	
Go, go on	Lok	Indeba.	I want	Bei.	Gimma.
Grass	Ual Totj.		Water	Piu.	Muni.
Gun	Akol	Kuddah.	Wind	Jur.	
Hippo	Rau.		Wilderness	Ror.	
Horse	Dunkur.		Well	Jît.	
Iron	Lung.		Woman	Tîk.	
Is there ?	Ata-ta.		Wood	Tim.	Kagga.
Little	Akur.		Where ?	Aiyu.	Nabba.
Man	Mutj.		Yesterday	Koluai.	
Many	Adjokje.				

DAR FERTIT.

For brief description of Dar Fertit, now partly in the Bahr El Ghazal and partly in French territory, *vide* p. 256. Very little is known about it definitely.

* The Roman Catholic Missionaries who visited the Golos and Bongos in the spring of 1904, and who now have stations in their country, west of Wau, express themselves as well satisfied with the outlook from their point of view.

† Compiled from information furnished by Captain S. L. Cummins (R.A.M.C.) and Mr. R. Tüerstig.



WOMAN OF DAR FERTIT.

13. ITINERARY OF THE BAHR EL GHAZAL RIVER.

Lake No—Meshra El Rek.

Place.	Miles.		Description.
	Intermediate.	From W. end Lake No.	
Lake No	—	—	<p>Proceeding up-stream westwards from the junction of the Bahr El Jebel and the White Nile, Lake No is immediately entered. Lake No is known to the Arabs as the "Moghren-el-Buhur," or the "Meeting of the Rivers." It is situated in north latitude 9° 29'. It is a shallow expanse of water covering a good many square miles of area, and surrounded on all sides by reedy marsh. It is probably a portion of the great lake which once covered this country. Through its eastern end the Bahr El Jebel passes, and the Bahr El Ghazal enters it at its western extremity. Lake No acts as a reservoir for the waters of the sluggish streams which drain the extensive plateaux forming the watershed between the Congo and the Nile. These streams find their rise in an area lying between latitude 5° and 8° north, and longitude 24° and 30° east. The channel by which their united waters are delivered to the Nile is the Bahr El Ghazal, and from it the province through which it passes receives its name. Its chief affluents are the Rohl, the Jan, and the Tonj on the right, and the Bahr El Arab, the Bahr El Homr, and the Jur on the left. The water thus brought down fills up the depression known as Lake No, over which area the water of the Bahr El Jebel spreads. The consequence is that this lake is an expanse of water through which little or no current passes, but whose levels rise and fall with that of the Nile. The flooded area changes according to the season of the year. It forms an important reservoir for the White Nile. The actual extent of Lake No is difficult to ascertain. It has been variously estimated at from 20 to 40 square miles. These differences are probably due to the fact that the area was estimated at different periods of the year. During maximum flood the extent cannot be much less than the larger estimate, but at the period of low supply the area is much reduced, and in 1900 and 1901 could hardly have exceeded 8 square miles. In the early months of these years the surface had shrunk to very small dimensions, and more resembled a large river than a lake. The width, during the period of low Nile, is extremely variable. Thus in April, 1901, in the first mile from the White Nile, the open water surface was at times under 200 yards, and then suddenly widened out to, perhaps, 2 miles; a little further on it again contracted, and for 4 or 5 miles more varied from 300 to 600 yards. The depth, at that time, was nowhere more than 7 feet, and, in places, only 4 feet. No current at all was visible through any portion of the lake. Beyond the open water stretched a broad belt of flooded reeds. This belt was chiefly composed of "Um Suf," with clumps of umbach. The open water itself was full of reedy islands. Lake No abounds with hippopotami and waterfowl. The former cause a good deal of trouble to the Nuer population, as they are unusually savage in this locality, and are said to make a practice of attacking any canoe or raft crossing the lake. The bank to the north of the eastern end swarms with lion and antelope of every description (January, 1903).</p> <p>After passing the entrance to the Bahr El Jebel, keep to the northern channel. Open water right and a few low bushes; ant-heaps (termites), and dry ground left. Some wood. Landing possible. At 6 miles from the White Nile a continuous line of Nuer villages runs parallel to the left bank of the channel for several miles, and marks the ridge beyond which the swamping does not extend. Their average distance is some 2 miles from the river. The villages appear to be thickly populated, and the inhabitants possess large herds of cattle, sheep, and goats; they now barter their fowls, &c., with readiness.</p> <p>From 7 miles above the White Nile—Bahr El Jebel junction (whilst still within Lake No) and westwards the channel is, in dry weather, reduced to 80 or 90 yards wide. In flood-time the line of the channel is not visible. This channel is by some termed the Khor El Deleb, in continuation of a khor of that name which flows into it at the western end of Lake No; but as the Bahr El Ghazal is obviously the main stream, the latter name has been applied to it here from the Bahr El Jebel junction westwards. About 10 miles west of the Bahr El Jebel mouth take southern channel, which comes in west-south-west, leave northern channel, as it closes up and comes to a dead end 5 miles on. Large village, Nuer tribe, 2 miles away left. Scrub on horizon left. Reeds, sudd, &c., both sides, and all part of Lake No.</p>
Bahr El Ghazal ...	0	0	<p>The true Bahr El Ghazal comes in close here left. Narrow mouth, 40 yards; 8 feet deep in March. Sudd seen floating down stream, 1½ miles an hour. Leave broad open channel, which bifurcates 2 miles farther on, and becomes the Deleb and Signorina backwaters, ending 18 miles up. Take northern channel, which is now the Bahr El Ghazal. The Khor Deleb, which enters the river from the south at the western point of the lake, is a wide expanse of</p>

Place.	Miles.		Description.
	Intermediate.	From W. end Lake No.	
River Rohl or Khor Deleb	2	2	channel 150 to 200 yards in breadth. It forms the outlet for the waters of the River Rohl, coming from the south. In summer no current at all is apparent. The Ghazal River at this point, with a width of some 40 yards, is in appearance a more insignificant stream than the other. Its depth, however, is greater, averaging 13 feet, as against 6 or 7 feet in the Deleb. The Khor Deleb was explored by Major Peake for some 18 miles above this junction. At this point it was blocked by sudd and reeds, with trees on both banks, so that further progress was impossible. It had, however, a decided stream coming through the reeds, which left the Ghazal 33 miles higher up. The transparency of the waters differs in the two channels; that of the Khor Deleb being opaque and of a whitey-grey colour, while that of the Bahr El Ghazal is clear and limpid, like that of the White Nile itself. Between the two rivers, which run parallel for some distance, is an expanse of low marsh, a foot above low-water level. This whole area must resemble a large lake when the rivers are in flood, and the aspect of the country is desolate and monotonous to an extreme degree. It is absolutely treeless; the atmosphere is damp and warm even in the winter months, and the mosquitoes are of a peculiarly venomous variety.
Mayyet Eléri ...	16	18	Proceeding up the Bahr El Ghazal, for a long way there is little change in the landscape. The low banks continue, and the stream winds about through the marshes with a very feeble velocity. At 18 miles a large khor joins the Bahr El Ghazal on the left bank. This is known as the Mayyet Eléri, and appears to come from a north-westerly direction. It is this khor which has been supposed to be the junction between the Bahr El Ghazal and the Lollé. From the slope of the country, however, it would seem that water flows from the higher land into the Bahr El Ghazal. It is possible that in flood there may be a spill in the opposite direction. This khor, although 200 yards in width, is very shallow. At 21 miles the Khor Deleb approaches to within 1,200 yards of the Bahr El Ghazal. A solitary debel palm (mentioned by Junker) forms a fine landmark on the right bank. The Khor Deleb derives its name from this palm. The left bank of the river beyond the fringe of swamp is an extensive grass plain covered with ant-hills. These are so close together that they somewhat resemble a gigantic grave-yard. The Nuer villages are now a long way from the bank. As the river is ascended the country becomes more and more hopeless-looking. Flat grass plains extend to the horizon, and a wide band of swamp borders either side of the waterway. The channel narrows, and in places is not more than 25 yards. The depth is from 12 to 16 feet, and the turns and bends, though not as sharp as on the Bahr El Zeraf, are endless. The difference between the Bahr El Zeraf and the Bahr El Ghazal is very striking. The water of the former during the period of low supply is considerably below its banks; in the latter it is almost level with them. The rise of the former, even in ordinary flood, is not less than 6 to 6½ feet. That of the Bahr El Ghazal, on the contrary, must be very small. It is difficult to imagine that even in flood the water can rise more than 3, or at most, 4 feet over its lowest level. Even with such a rise, the area of the country under water would be enormous, and the flooding would extend for a very long distance. A few miles further up the depth of water increases to 19 feet, and in places to 25 feet. For the first time forest appears in the distance on the left, but several thousand yards away from the river. The right bank is now covered with low bush and scrub beyond the flooded line. The country bordering the Bahr El Ghazal does not have the appearance of being under water for any length of time, even in flood. In this respect, again, it differs from that traversed by the Bahr El Zeraf. It must, however, be saturated and resemble a sponge in the rainy season. There cannot be more than a very shallow film of water over these plains, or the bush and scrub would not flourish as it does; neither would ant-hills be found in such quantities. The general slope of the country is so low that the water must drain off extremely slowly.
Deleb palm ...	3	21	
Mayyeh Nur ...	10	31	At mile 31 the width is 60 yards, and the reed-belt gets narrower; a very large "mayyeh," or khor, comes in on the left bank here. This is known as the Mayyeh Nur, or the Mayyeh Mahmud Effendi. Its width near the junction is from 150 to 200 yards, and its general direction appears to be west. It is very shallow. This mayyeh is said to receive the waters of the Keilak River (Mayyeh b'ta Komandari (?)), a stream about which little is known, but which is supposed to rise in the hills of Dar Nuba. There is a wooding-station on right bank opposite the Nur. Up-stream of this junction the Bahr El Ghazal takes a more southerly direction. The two streams run for some miles parallel to one another, from 600 to 700 yards apart. The country between the two is, perhaps, 2 feet over the water. At mile 35, the first papyrus seen since leaving the White Nile is met with. From this point on, for many miles, a band of this reed fringes both edges of the water. It is never so high as on the Bahr El Jebel, nor does it grow here in such dense luxuriance as on that stream. The water surface is very narrow, often not more than 20 yards, but the depth is considerable, averaging from 15 to 19 feet. The reed-birds here are an extraordinary sight. They are to
Papyrus ...	4	35	

Place.	Miles.		Description.
	Intermediate.	From W. end Lake No	
Camping ground ...	14	4)	be seen in myriads and resemble a flight of locusts. The Serût fly is very bad on the Bahr El Ghazal. The ant-hills certainly form a distinctive feature of the Ghazal scenery. Nowhere else are they so large or so numerous. They are generally from 20 to 50 yards apart. At mile 49 good halting or camping ground, fairly dry; bushes and trees right. Large clump of big trees $\frac{1}{2}$ mile away south. This clump is close to the stream running into Mayyeh Deleb. From here on, channel very narrow; papyrus both sides; liable to be blocked with sudd at any time; large islands of sudd are met, often taking up whole width of stream up to the junction with the Bahr El Arab, where river is much wider again. Mayyeh right: river bends sharply, channel only width of steamer, 17 feet; current very fast; numbers of owls and <i>Balœniceps Rex</i> seen about, also hippopotami; some wood left, 500 yards away. Large trees left, close to water, good for fuel; village on horizon right, and two Dom palms; channel opens up. At mile 53 wooding-station left. The papyrus belt gets wider as the river is ascended, and at 57 miles the forest on the left bank comes down close to the water's edge and the river skirts it for some 2 miles. The trees are large, but the belt is only a few hundred yards wide.
Wood-station ...	4	53	The scenery here is beautiful, as the ground is high and glades of fine trees are scattered about the grassy plain. Many elephants are to be seen. On the right bank is a wide marsh through which the river channel has evidently wandered at times. This is the beginning of the reach in which the Bahr El Ghazal is occasionally closed by sudd. At 61 miles, in 1880, Marno found his first block here, and in November, 1898, and April, 1899, it was blocked.
Large tree ...	8	61	Large solitary tree right bank. The channel is very narrow, deep, and winding. At present it runs under the high bank, but it is clear that it could easily be blocked at one of the many bends, and in such a case it would doubtless form a series of lagoons and mayyehs in the adjacent papyrus marsh. After leaving the left bank forest for a time the river at mile 62 again returns to it. The depth of the channel suddenly decreases to 5 feet, but soon deepens again to 10 and 13 feet. This shoal is doubtless caused by decomposed sudd which has sunk to the bottom. Such a bar is one of the frequent causes of a block. The sudd raises the bed level, and other masses floating down ground upon the obstruction and the channel is speedily closed. The Bahr El Ghazal has evidently changed its course here very recently. It is now much closer to the left bank than it was in 1899. The change has probably been caused by a block of sudd. It was near here, i.e., at mile 63, that Gessi Pasha had such a disastrous experience in January, 1880. His steamers, on descending this river, were imprisoned in the sudd for some 6 weeks, and he lost over 100 men. Had it not been for the opportune arrival of Marno in the "Bordein" none of the party could have escaped. They were on the verge of starvation and it was impossible to obtain fuel for the steamers, being cut off from the shore by an impassable swamp. These 6 or 7 miles of the Bahr El Ghazal must always be more or less dangerous, as regards possible closure by sudd, at certain seasons of the year. In 1900 and 1901 the channel was open, but in the spring of 1899 it was closed not far up-stream of this point. The channel is extremely contracted, having a width of only 12 yards and a depth of 13 feet. The course is so tortuous that it is difficult to follow all the turns. The whole of this area must, in the rainy seasons, be a reedy lake. At mile 64 the river emerges from this dreadful marsh and the width increases to 30 yards. The banks average 2½ feet above water level. The country on either side is generally higher. On the right, bush is dotted about, and the ant-hills reappear to the left in a large grassy plain. At mile 65 the river widens into a lagoon, some 400 yards broad, and a mile in length. At the up-stream end of this lagoon a large mayyeh is said by the Arabs to form the outlet of the Jau River, which is another of the tributary streams that feed the Bahr El Ghazal from the south. This channel, which is known as the Mayyeh Ahmed Arabi, runs more or less parallel to the Bahr El Ghazal for some 40 miles, taking off it at Lake Ambadi, or 88 miles from the point where the Ghazal and the Deleb join. It is often at a considerable distance from the main stream, but glimpses are to be seen of it at times. A fine tamarind-tree close to the edge of the mayyeh assists recognition of this spot. In 1899 the Bahr El Ghazal was blocked by sudd near this junction. The right bank continues to be fairly high, but the left is low and must be flooded for a long distance. The stream is now more rapid. The air in the mornings here is cool and damp, but a strong marshy smell prevails. At mile 74 wood-station left bank. Elephants, and the <i>Euphorbia</i> first, appear. This shrub is fairly plentiful from this point up-stream. For several miles there is little change in the conditions, but at mile 79 trees are visible on the right bank, about 1,500 yards from the river. The intermediate country is flooded. A few Dinka are occasionally met with, but no villages. The absence of human habitations on this river is very striking. Since the Nuer villages were left behind at mile 43, not a sign of life has been visible. A small but deep khor joins the river on the left bank here.
Gessi's place ...	2	63	
Jau River or Mayyeh Ahmed Arabi	3	66	
Wood-station ...	8	74	
	8	82	

Place.	Miles.		Description.
	Intermediate.	From W. end Lake No.	
False Bahr El Arab ...	8	90	From here for the next 20 miles good wood left. At mile 90 a large and important khor comes in, also on the left bank. This channel, which was asserted by the boatmen to be the Bahr El Arab, and which was ascended under this supposition, flows from a north-westerly direction and evidently brings water from a long distance. Later experience has proved that the Bahr El Arab is several miles further up-stream, but this khor must, nevertheless, bring down a large volume of water during the flood. It is quite possible that it forms a second mouth of the Bahr El Arab. It joins the Bahr El Ghazal through two small lakes or lagoons, the largest being about 1,000 yards long by 800 yards wide, with an island in the centre. These lakes are swarming with hippopotami. The width of this khor is much greater than that of the Ghazal, being from 100 to 120 yards. It has a perceptible though feeble current even in April, but its depth is shallow, averaging from 4 to 5 feet. It was ascended for some 8 miles above the junction, when shoal-water prevented further progress. Its general direction is north-west, but at the furthest point reached it turns sharply to the north, and its course can be traced for a long distance, winding through the country. Even here its width is 100 yards, with wide-stretching mud-flats on either side. It runs between flat plains covered with low grass and averaging 2½ feet over the water at the river's edge. It differs remarkably from the Ghazal in its characteristics, particularly in the absence of the reed fringe which distinguishes the main river. Its rise must be small, as the banks show no trace of flooding.
Lau ...	6	96	From 5 miles above the junction a succession of Dinka villages line both banks. Some of these are large and appear to be thickly peopled. The principal village is called Lau. This consists of a large collection of scattered huts, grouped together, and covering a large area. It would be interesting to explore this khor during high water and ascertain whether it really is one of the outlets of the Arab River. To return to the Bahr El Ghazal. From the point where this khor joins it, the general course is due west and fairly straight with occasional long curves. It is bordered by a narrow strip of papyrus on either bank, and traverses a country of flat grassy plains. This river is placid and sluggish throughout its entire length, and can never approach anything like a torrent, even when in flood. It meanders along, slowly and gradually sucking away the moisture of the vast, water-logged flats through which it passes. Its width averages from 60 to 70 yards, and its mean depth is 10 feet.
Forest ...	1	100	At mile 100 trees and bush are found on both sides and the banks are clear of reeds and continue until mile 103, where the Bahr El Arab joins the Ghazal. This forest is known as the "t'haba b'ta el Arab," and is one of the few wooding-stations to be found on the river. The trees upon both banks are different from those found elsewhere. There are a few mimosas, but the bulk are very thorny trees with bright green leaves. The belt of wood is about half a mile in width, back from the river. Behind it are open spaces of grass, through which broad and shallow lagoons wind. In this plain are many large clumps of trees. Except in the depressions, the country here is certainly not flooded, even in the rainy season. The marks on the banks show that the maximum rise of the river is not more than 3 feet. The Bahr El Arab is a broad well-defined channel, from 40 to 100 yards in width, and confined between well-marked, but swampy, banks. Its direction, at the junction, is due north, but about 3 miles further up it turns more to the west and runs apparently through forest. Next to nothing is known of this river. Felkin crossed it in December, 1879, and found it, 300 miles from its mouth, 120 yards wide, with banks 15 feet above low water. He noted that in the rainy season it flooded the surrounding country. It is impossible to investigate this river, as, at some 1,300 yards above the junction, it is closed by sudd and reeds. It has no current at the mouth, and its depth is from 10 to 11 feet at low water. The water of the Bahr El Arab is singularly clear and free from sediment. Reports received in the spring of 1901 show that this river is still blocked by sudd. Immediately up-stream of the Bahr El Arab junction the Lake Kit, or Ambadi, begins. The Bahr El Ghazal traverses this lake, but from this point its nomenclature changes, and the river is known as the "Kit," or "Keit," by the natives, and as such is entered on many maps. At mile 105, Lake Ambadi is divided into two parts by a large grassy island, about a mile in length, the right channel being 400 yards, and the left 150 yards wide. Half-way up the right channel, the large Mayyeh Ahmed Arabi, previously alluded to, rejoins the Bahr El Ghazal. It has a width of 500 to 600 yards here. The swamps surrounding this lake are of considerable breadth, especially on the left side. They are very low and reedy, and a very small rise in the water levels must increase the flooded area enormously. It is impossible to calculate the width of the swamps on the left bank. They appear to extend for many miles from the water's edge. Lake Ambadi has an average depth of 10 feet, in the deepest parts of the channel, but shoals rapidly on either side. It is evidently the great reservoir of the Bahr
Bahr El Arab ...	3	103	
Lake Ambadi ...	1	104	

Place.	Miles.		Description.
	Intermediate.	From W. end Lake No.	
			<p>El Ghazal, receiving the waters of the swamps and the southern rivers, and slowly discharging them by means of the narrow but deep channel of the Ghazal itself. At low water it has a length of about 10 miles by an average breadth of 1 mile; in flood-time the area must be very much greater. It is a great nursery for certain of the sudd grasses, but chiefly those of the "swimming" variety. The <i>Agolla</i>, <i>Utricularia</i>, <i>Aldrovandia</i>, <i>Otella</i>, and many other kinds are found upon its waters. The <i>Pistia</i> is conspicuous by its absence. Among the reeds in the swamps a certain amount of <i>Vossia procera</i> and <i>Saccharum spontaneum</i> is met with, but not in such proportion as on the Bahr El Jebel. The papyrus does not exist on this lake, nor does the ambach. Except between miles 35 and 82, the former is not found at all on the Bahr El Ghazal, and it only grows in real luxuriance between miles 65 and 77. After Lake No is passed, ambach is not found in the Bahr El Ghazal. The absence of papyrus and "um sūf" is probably the reason why the sudd in this river is so much less tenacious and is so much lighter in consistency than that of the Bahr El Jebel. [Col. Peake, however, speaks of the sudd here as being of a "very tough and felt-like consistency."] Lake Ambadi is the home of large numbers of the rare <i>Baleniceps Rex</i>. The evaporation upon the lake must be very great during the hottest months. With two large and shallow sheets of water like Lakes Ambadi and No, the amount of water discharged by the Bahr El Ghazal must be largely reduced before it reaches the White Nile.</p>
Kit River	10	114	<p>At mile 114 the lake stops and the river recommences. This is the Kit, properly so called. Its width here is from 100 to 120 yards and its depth 10 to 11 feet. The current is so feeble as to be almost imperceptible. The Bahr El Homr comes in near this point. On the 1st October, 1900, Captain Sanders found the Bahr El Homr navigable for 5 miles; after which it was blocked by sudd. Its width is 80 yards and depth, 9 feet; direction N.N.W. Col. Peake places its junction 9 miles further down stream. It appears to have no discharge in March and April, and the water shoals so that it is impossible to explore it. For the next 3 miles the Kit has a mean width of 180 yards. The water surface suddenly narrows to a width of 20 yards, the remainder of the channel being filled by sudd. In this block are several reedy islands. The country is now a dead flat in every direction. Even on these African rivers it is rare to see an expanse giving a greater impression of flatness than does this. On all sides marshes extend, apparently to the horizon. It is quite impossible to arrive at an idea of their area. In these marshes are many large lagoons. A little further up-stream, the channel widens again from 35 to 40 yards, with a depth varying from 12 to 15 feet. Occasionally it shoals to 6 feet, or less, probably owing to sunken sudd upon the bed. Navigation at all seasons must be very difficult, as the river winds and twists through the marshes. There are no tall reeds here; nothing but floating plants, and the water is choked with masses of decayed weed. It is a hopeless morass. During stormy weather, this place is one of those where blocks are often formed. There are no signs of life anywhere, with the exception of the <i>Baleniceps Rex</i>, which are numerous. These horrible marshes continue for another 6 or 8 miles. Sudd islands separate the channel, in places, and the width varies greatly. At one point of this reach, viz., at mile 120, the main channel of the Kit was quite closed in March, 1900. The entire river was forced through a small opening, 10 or 12 yards wide, through which a strong stream was rushing, and in one place it was actually barred for 50 yards. The total length of the block was about 500 yards. A more loathsome-looking swamp it is difficult to imagine. The sudd in this river is very different from that of the Bahr El Jebel. It is impossible to walk on its surface, which resembles slime rather than sudd, but which is bound into a mass by vegetable matter. The chief ingredients appear to be the long trailing, swimming plants, described as found on Lake Ambadi. It is not difficult to force a way through it, but the stuff, when removed, does not float as does that on the Jebel, but sinks and decays. Three miles on, the two groups of trees called Matruk-el-Wabur ("the landing-place of steamers," <i>vide</i> Junker) are passed on the left, about 2 miles from the main stream. A channel, at present blocked by sudd, leads to the landing-place. Matruk-el-Wabur is an island of dry land in a sea of swamp. When Col. Peake visited it in 1898 the remains of the former French occupation were visible. The Egyptian flag was hoisted here on the 28th September, 1898. Up-stream of this point, for another 5 miles, the Kit winds about; the width of the channel increases, averaging from 180 to 200 yards; its surface is covered by myriads of water-fowl, the whistling duck being especially numerous; a few Dinka are to be seen, who have come down to the river for the purpose of fishing and hunting the hippopotamus. At mile 128 the channel bifurcates. The Kit itself runs due south, in the direction of Meshra-el-Rek. The other branch has a westerly direction, and receives the water of the Jur River, which, again, forms the outlet for the Sueh and Wau Rivers. The latitude of this junction, as observed in April, 1900, was</p>
Matruk-el-Wabur	9	123	
Mouth of Jur River ...	5	128	

Place.	Miles.		Description.
	Intermediate.	From W. end Lake No.	
Navigability ...	---	---	<p>8° 44' 50" north. The water at the time was so shallow that it was impossible for the steamer to ascend the channel, the width of which was from 600 to 700 yards, with a depth of 3 feet. The water coming down this stream was of a dark amber colour, and was evidently the drainage of the marshes. A slight current was visible. The general direction of the Kit is south or south-west. Captain Sanders, who visited this place in September, 1900, found the Kit completely blocked by sudd; but Lieutenant Fell, R.N., ascended it in November of the same year, and reports that the water near the Meshra was "foul, stagnant, and very shallow." In March, 1900, the sudd was very light, mostly floating, and easily removed. Above this junction, the expanse of water into which the Jur discharges itself has a width of 400 yards, a depth of 10 feet, and a fair velocity, even in the month of March. The marshes here are bewildering in their extent.</p> <p>After 3 years' experience, it is found to be impossible for a steamer to reach the mouth of the Jur River, and, therefore, of course, Meshra-el-Rek, from the middle of April till the middle of July. In May a steamer cannot get within 15, and in June within 35, miles of the Jur mouth. Even when free of sudd, the Jur is unnavigable, owing to its shallowness, from the first week of December to the end of July. After strenuous exertions during 2 years on the part of Lieutenant Fell and others, the Jur has now been cleared of sudd and a channel made for steamers up to Wau, a distance of 160 miles. This enables stores, &c., to reach headquarters by water during 4 months of the year (August to November, inclusive). The sudd is, however, quick-growing and grows from the bottom. Sudd-cutting parties have, therefore, to be annually employed during the low river time to clear a channel for the flood-time. The average difference between high and low Jur is as much as 15 feet; in flood-time the current is swift and the river deep, whilst the reed beds on either side make towing impossible. Luckily a north wind helps boats along up-stream.</p>
Meshra El Rek ...	25	153	<p>(Junker made the total distance by river from Lake No to here, after 1,781 angular measurements, to be about 135 miles; but it is difficult to make out his exact point of starting.)</p> <p>Meshra-el-Rek lies on a small island in a backwater—the river itself apparently starting in marsh land, and not yet having been defined. Island about a mile long and varies from 200 to 400 yards in breadth. On either side of the river marshes extend for 2 or 3 miles. Mosquitoes swarm, and, owing to the stagnant condition of the river, the water supply is very indifferent during the dry season. No natives live within about 7 or 8 miles. The station consists of straw tukls—the hospital standing on the one bit of high ground. Great difficulty in building huts, as there is no wood suitable within several miles; on the whole a most unhealthy place. High ground lies quite 5 miles beyond the marsh. The French had a fort near our present post in an even worse position.</p>



THE BAHR EL GHAZAL.



THE BAHR EL GHAZAL—MOUTH OF RIVER ROHL.

CHAPTER VIII.

WESTERN SUDAN.

KORDOFAN AND DARFUR.

SECTION I.—KORDOFAN.

1. *General Description.*

The country between the Nile and the eastern frontier of Darfur consists of vast plains broken in places by clusters of hills, which rarely exceed 600 feet in height above the plain. In the north, these plains are intersected by wadis which run down from the hills and gradually lose themselves in the sand. The country is thinly covered with low scrub, which becomes denser in the wadis. Towards the south the khors gradually become less and less, until about lat. $14^{\circ} 30'$ north they cease. Here the real bush country commences, and the surface of the ground becomes more undulating. There is no visible watershed, the rain sinking in where it falls.

The northern plains, occupied by camel-owning tribes, consist chiefly of reddish sand, which, if the rains are good, supports plenty of coarse grass and crops of dukhn. Should they fail, even the grass in the wadis does not afford grazing, and the wells give out (1902-03).

In the undulating country between El Obeid and the river the grey gum acacia (hashab) is the prevailing tree. The soil here contains more clay than further north. Between Id El Ud and Zerciga on the east, and Hashaba and Jebel Kon on the west, is a waterless district called El Agaba, in which grows little but marakh bush and coarse grass.

Between El Agaba and the river the ground falls, at first abruptly, and then very gently, to the river. The sandy soil gradually disappears, and along the bank is replaced by a strip of black soil, in places, 12 miles wide. This soil is rich and is generally overgrown with thick bush. On the river bank, and as far inland as the floods at high Nile reach, large red sunt trees are found. At high Nile these often stand in 3 or 4 feet of water. During the rains this soil becomes a swamp, impassable for camels in most places, the khors fill with water, and the roads near the river go out of use. As soon as the rains stop and the river falls, this soil dries up and cracks, and until the paths have been used for some time the going is very bad.

In Dar Hamid, a large district north-west of Bara, there is a series of basins running from north to south, divided by steep ridges of red sand. At the bottom of each basin, locally called a "khor," the soil is white, sandy earth, containing much lime. Water is here found at a depth of from 4 to 10 feet. These khors were formerly all cultivated by Danagla, who used shadufs or saglias. The whole district, which extends from Ashaf in the south to Shershar in the north, is known as El Kheiran. Date, dom, and deleib palms, as well as limes grow, and in a few places gardens with onions, shatta (red pepper), rigl, etc., have been made.

Though the change is very gradual, south of lat. $13^{\circ} 15'$ the plains become more level. They are broken by deep khors with steep banks, and are covered with thick bush or tall trees up to the foot of the Nuba hills. Further south the bush becomes larger, until huge forest trees are met with. On the edge of the khors there are immense creepers and tangled undergrowth. The soil appears fertile, but is only cultivated near the hills. The rest of the country is covered with jungle, and becomes a swamp in the rains, but afterwards quickly dries up. The timber found is of little value, being chiefly acacia. Game is abundant. Elephant, giraffe, and antelope abound; monkeys and birds are found in great numbers in the woods. Snakes are also said to be common.

Dar Nuba is the only part of Kordofan where the scenery can be said to be pretty, and some of the views of the hills looking over masses of forest are really beautiful, whereas most of the rest of the country is wearisome from its sameness. The hills in the north are nearly bare of vegetation. On all the Nuba hills thorny bushes grow between the rocks, except on a few of the more isolated hills, whose summits consist of piled masses of rock devoid of vegetation. They are terraced for cultivation, by the people, to a height of 300 or 400 feet from their base.

The most important groups of hills are, in the north, Jebel Haraza and Jebel Kaja Katul, both inhabited by Nuba Hills.

Arabs, and Jebel Kaja Serrug in the west. In the south, Jebel Daier, Jebel Tagale, Jebel Kadero, Jebel Gedir, Jebel Moro, Jebel Talodi, Jebel Kari, Jebel Eliri-liri, and Jebel El Joghrib, are all inhabited by Nubas.

Dar Hamar.

Dar Hamar, the country west of Dar Hamid, and extending up to the Darfur frontier, consists of gently undulating steppes covered with bush. In places there are a few low rocky hills, and the horizon is broken by huge tebedi trees. As there are few wells, almost the whole population depends on the water that is stored in these trees during the rains. Throughout the province, from November until June, the plains have a dried-up appearance, only broken by the few trees, such as the hashab and marakh, that remain green throughout the year, and in the southern districts by the trees in the khors, which can be traced as bands of dark green, winding through the black hills and dull brown plains.

Drainage system.

The drainage system of Kordofan is complicated. It is doubtful if any rain that falls there ever reaches the Nile, unless it does so underground. In the north, the hard sand forms wide shallow wadis, which, after wandering for a greater or lesser distance, either lose themselves by spreading over a bare surface, or by striking an outcrop of rock form a "sink," which enables shallow wells to be dug, and gives an excellent supply of water. In the south, the softer soil and more abundant rainfall, together with, in places, steeper gradients, cause the shallow wadis of the north to be



KORDOFAN ARABS WITH CHIEF.

replaced by narrow khors with steep sides. But the water eventually disappears from the surface in the same way as in the northern districts. For example, the wadi from Abu Tabr and those north of Jebel Derish end at Shageig, where a plentiful supply of water is to be found all the year round. Jebel Kajmar also is the natural dam to Wadi El Sigai, which flows from the south. Habisa is another similar place. In the south, the Khor Abu Habl loses itself west of Gedid, and further west, El Sinut, a large lake in the rains, and a swamp afterwards, is believed to have no outlet.

Lakes.

The chief lakes are Abu Serai, Sherkeila, El Rahad, and El Birka. In January, 1900, all were dry, but in 1901, El Rahad lasted for the whole year, though El Birka was dry by the end of December. Abu Serai always dries up a few weeks after the rains cease. Sherkeila is said generally to dry up, but was full in December, 1900, and was expected to last until the next rains. Rahad was also full.

These lakes are said to be all connected with the Khor Abu Habl, but native information points to El Rahad being the end of Khor Khashgil, only Sherkeila and Abu Serai joining the Khor Abu Habl. As a proof of this, in 1902, after the rains, Sherkeila was full and El Rahad nearly empty. When dry, wells are dug in the bottom of the lakes.

In Western Kordofan there is a series of swamps—Abu Zabbat, El Sinat, El Seneita, Toto, Kutna, and Burdia—but though in the rains they are generally full of water, they dry up almost at once, and can hardly be dignified with the name of lakes. The Baggara Arabs, who frequent these swamps, dig wells in the middle of them as they dry up and build up the mouths with wood and earth to a height of 4 or 5 feet, to prevent the mud and grass washing in during the rains. In Southern Kordofan there are many such tracts of land under water during the rains; and Butler Bey (in March, 1902) found, about 50 miles north-west of Jebel Eliri, a lake called El Abiad, which although said never to dry up, was dry in January, 1903. It was (in March, 1902) about 6 miles by 4 miles, and contained excellent fish. As far as could be ascertained it had no outlet. The only really permanent lake, as far as is known, is Lake Keilak in the Dar Homr district, which is about $4\frac{1}{2}$ miles by 2 miles.

In many districts the difference of level is so slight that it is very difficult, except during or just after the rains, to detect which way the water flows. As soon as the country dries up the wind and sand rapidly obliterates all signs of running water, and many wadis can only be recognised by their more abundant vegetation. Wadis, &c.

In the centre of the province, that is, south of the Helba-Bara road and parts of Dar Hamar and north of the Gedid-Um Ruaba-El Obeid road, there is no watershed, and hence no khors or wadis properly so called. This country is undulating, but the hills seldom have any general direction; where they have, it is north and south, but the valleys are seldom of any length and never contain streams. The rain sinks in where it falls. However, just as in Dar Hamid, every basin, though without an outlet, is called a khor, so in this part of the country every depression is called a wadi, and takes its name from the adjacent village.

The water supply, which is entirely dependent on the local rains, is derived from (1) wells; (2) surface water in pools or fulas and the lakes; (3) tebedli trees (*Adansonia digitata*), and melons. Water supply.

The best watered portions of Kordofan, excluding the Nuba hills, are Dar Hamid, Bara, and El Eddaiya, where the wells can be worked with a shaduf, and there is enough water for irrigation, and the basins of El Obeid, Abu Haraz, and Sherkeila.

Elsewhere water is always liable to give out, and towards the end of the hot weather whole villages are frequently obliged to migrate to more favoured places until the rains once more fill the fulas.

North of $14^{\circ} 13'$, except actually during the rains, when pools form in the khors, the only water obtainable is from wells or holes in the hills. The former are numerous, but are liable to become choked by drift sand or to fall in when a sudden rush of water comes down the khor. They vary greatly from year to year, being entirely dependent on the local rainfall over a limited area. There are a few places, such as Gabra, Habisa and El Safia, where the water is said never to give out. The wells in the desert country are seldom more than 50 feet, and often only 5 or 6 feet deep, being dug in the bed of a khor, often at its termination, as at Kagmar. Wells.

On the Bara-El Dueim road some of the wells are, however, over 200 feet deep, and water is generally plentiful. Further south the wells become less deep, and give less water. In the valley of the Khor Abu Hahl and in Dar El Ahamda the wells average 30 feet, but the amount of water they contain depends entirely on the local rains.

The deep wells in Eastern Kordofan are of two kinds: those in hard soil or rock, and those in sandy soil. The former are generally 5 to 8 feet in diameter and unlined, and with care will last for years. The latter are seldom more than 3 or 4 feet in diameter and require constant attention. As they are dug, a lining called "lawai," has to be put in. This is made of grass rope in lengths of about 40 feet. Near the bottom the lining is made of the roots of trees, that of the "hashab" being considered the best for this purpose. This class of well requires constant repairing and cleaning, and seldom lasts more than two years, when the sand at the bottom "caves in," and a new well has to be dug. Hence, where many old wells are found it does not imply that more than one or two were open at the same time. In these, as in all desert wells, a dilwa must be used for drawing water, as a bucket damages the sides. Men must not be allowed to go near the mouth of the well with boots on. In a few places stone-lined wells exist.

In the Nuba hills the wells are usually big holes, down the sides of which the women climb to draw water; the art of well-sinking is generally unknown. In some places, however, the wells are lined with trunks of trees. When watering cattle the men and women go down the well standing across it and pass kantushes up and down. This is a very quick way of drawing water, but, as a good deal is spilt, and as both men and women are naked and covered with oil and red clay, the effect on the water is unpleasant. When drawing water in this way the women protect their head-dress, which consists as a rule of a lump of clay on each tuft of hair, by putting half a gourd on their heads.

In the Nuba mountains running streams are occasionally found, notably at Jebel Eliri, Jebel Tira El Akhdar, and Jebel Kindirma, but their water almost immediately disappears into the soil on reaching the plains.

In other mountains water is found in large rock tanks often as much as 500 feet above the plain.

In the greater portion of Dar Hamar there are no wells, and as soon as the surface water dries up, generally about the end of October, the natives are dependent on water-melons and water stored in tebedli trees.

"Fulas," or artificial ponds, exist near many villages. They are usually made by damming a khor, but the ground is so porous that the water seldom lasts after October. The lakes have already been described. Fulas.

Tebeldi
trees
(*Adansonia*
digitata).

The tebeldi trees (locally termed "Homr"), which are naturally hollow, and are besides often artificially scooped out, when used for storing water have a hole cut in the trunk, generally just above a big branch, on which a man can stand when drawing water. The hole is about 18 inches square. Round the bottom of the trunk a small pool is formed. This catches the water during a storm and it is then put into the tree by means of leathern buckets (dilwas) or girbas. Some trees, however, in consequence of being open at the top and having branches so formed that they act as gutters, fill themselves; these are called El Lagat, and are naturally very valuable. The trees vary in diameter outside from 10 to 25 feet, and the water-holding portion is often 20 feet high. The bark is frequently much cut about as it is used to make rope and nets. The largest trees are not used for water as the trunks are generally cracked. Water so stored remains sweet to the end of the hot weather, so that good trees are a valuable form of property, and are let or sold, either with or without the adjacent land. Near a town they are a source of many quarrels. On the main routes across Dar Hamar, *i.e.*, from Obeid to Nahud, or Shidera to Nahud, the Hamar make a living by selling water to travellers. During the Dervish rule many of these trees were destroyed by raiding parties cutting holes at the bottom of the trunk.

Melons.

The melons, on which whole villages, including horses, cattle, etc., depend, are small, almost tasteless, and full of black seeds. The natives grow them on the same ground as the dukhn, or else separately. When ripe, they are gathered and stored in heaps for future use. They are also found wild all over Dar Hamar. The skins are saved and given to the goats when the grass dries up. These water melons are not the same as the ordinary well-known water melon.

Produce.

Dukhn.

Dukhn or millet is the food of most of the Arabs. It is grown on the sandy ridges during the rains, and requires little water. It will not grow in the low ground as there is generally too much salt in the soil. It is also given to camels and horses, but is considered heating. It is easily grown. The ground is first cleared of grass. Before the rains, about May, holes are made with a crooked stick (maeh-far) a few inches deep and 5 or 6 feet apart, and a few grains are dropped into each hole, which is then closed with the foot. As soon as the rains commence the grain sprouts, and the crop is gathered at the end of October or beginning of November. The heads of corn are piled to dry before threshing. When the young plant is a few inches high it is liable to attacks from a large millipede called surffa. The natives make no efforts to kill this, as they say it only eats at night. This is an error, but even when it is proved to the Arab that they feed by day he is too lazy to destroy it. Later on the dukhn is liable, like other crops, to attacks from locusts and voracious small birds. When required for food, it is ground between two stones, the lower one being fixed, the upper rubbed backwards and forwards. Mixed with water it is baked in flat wafers, called kisra, or boiled into asida. It is also made into a sweet beer called Merissa or Um Bilbil. The dukhn of Kordofan is famous for its good quality.

Dura.

Dura is grown south of El Obeid, in the valley of the Khor Abu Habl and Nuba hills. It requires much more water than dukhn. It is cooked in the same way, and is considered much better food, but does not make such strong merissa. As forage, it is supposed to be less heating than dukhn, and being larger, animals are obliged to masticate it more; this is an advantage, especially in the case of camels.

Simsim.

Simsim is grown in small quantities everywhere. The seed is crushed in primitive mills, made by hollowing out the stump of a sunt or haraz tree. The pestle has a long arm attached to it, and is turned round by a camel or a bullock. The oil is used for cooking and hair-dressing. The refuse is excellent food for animals out of condition.

Tobacco.

Tobacco is grown in small quantities in the Nuba hills. It is wetted and made into hard cakes and smoked in large pipes by the blacks. It has a singularly unpleasant flavour.

Cotton.

Cotton is grown in many parts of the Province and must have been formerly extensively cultivated, as the old plants are to be seen in the vicinity of most ruined villages. It is woven on hand looms into damur (coarse cotton cloth) of an inferior quality.

Salt.

Salt is made in two ways. One method consists in mixing earth that contains salt with water, allowing the sediment to settle, and then evaporating or boiling away the water. The other method, which is followed at El Ghar, and other places where there are salt-water wells, is simply to boil the water until it has all evaporated. It is generally of a dark colour and somewhat bitter.

Iron.

Iron is plentiful, but now seldom worked. Some is smelted at El Nahud and Um Semeina, and spear heads, hoes, and axes are made. The works at Jebel Haraza are not now used. The absence of fuel will always preclude its becoming an extensive industry. A clay full of iron is found some 60 miles to the north-west of El Obeid.

Other
minerals.

Some old workings of gold and other minerals in the Tagale country have recently been explored, but the result has been unsatisfactory, and the gold appears to have been worked out. There may be other minerals in the country, but no details are known regarding them.

Gum.

The best gum comes from the grey acacia, called hashab. This is found between the parallels of 13° and 14°, but is little worked west of El Obeid, on account of the cost of carriage to Khartoum. The chief places where it is collected are El Obeid, Taiara, Bint Joda, Gedid, Um Dam, and Nahud, whence it is either taken by camel straight to Khartoum or to the river at El Dueim or Goz Abu Guma, and there put into boats. The cultivation is simple.

In January strips of bark are torn off the trees, dead branches cut away, and, in well managed gardens, the grass is cut as protection from fire. This should always be done, as fires, both accidental and incendiary, are by no means uncommon. As soon as the hot weather comes on, the sap runs up the tree and oozes out of the wound and the tree comes into leaf. This "garden" (geneina) gum is collected every few days and taken into the nearest market. As soon as the rains commence the flow of gum ceases. Wild gum (wadi) is also collected by people who do not own gardens, from the ownerless and, as it were, wild trees, but it is worth comparatively little.

The forests south of the Khor Abu Habl are full of red gum acacias (talh), but the trees are not worked, as the gum is of little value compared with the hashab which abounds. The latter is not yet worked to more than half its capacity, even in Eastern Kordofan.

The following table shows the amount of gum, in hundredweights, exported from the Sudan, most of which comes from Kordofan, but it is impossible to say exactly what proportion:—

Year.							Cwts.
—							—
1879	..	..	..	..	..	..	144,706
1880	..	..	..	..	..	..	135,646
1881	..	..	..	..	..	..	150,861
1899	..	..	..	..	..	..	41,963
1900	..	..	..	..	..	..	60,912
1901	..	..	..	..	..	..	170,781
1902	..	..	..	..	..	..	220,000
1903	..	..	..	..	..	..	191,214*

The chief market for ostrich feathers is at El Nahud, where considerable quantities are collected. The best come from Dar El Zeiah in Northern Darfur, but few of these come into the market. The Hamar Arabs keep a few birds in pens. Ostriches have been seen within a few miles of El Obeid. Ostrich farming on a large scale has been proposed, but would be difficult on account of the expense of obtaining food. Feathers from wild birds (Kitala) are longer and more valuable than those plucked from farm birds (Maata), which, though cleaner, are shorter and cheaper.

The trade in ivory was never very large, and had in 1901 practically ceased. It is now, however, increasing rapidly, owing to Government restrictions being removed. Over 50,000 lbs. weight passed through Nahud in 1903.

Large quantities of india-rubber might be collected from the country south of El Eddaiya if the cost of transport to Khartoum admitted of a fair price being paid for its collection. At present it does not.

There is a large export of cattle, mostly to Omdurman.

The imports consist chiefly of cotton goods, sugar, salt, soap, tobacco, beads and metal goods, such as axes, hoes, and fasses. Blue and white cottons and muslins, with open-work pattern, are chiefly in demand, but coloured goods are frequently asked for now that the sartorial regulations of the Khalifa are no longer in force. The blacks especially like striking colours, but the dyes must be fast to stand washing with mud and water when no soap is available.

It must be borne in mind in comparing the following account with former ones, that the Khalifa laid practically the whole of Kordofan waste at various times, and that when the province was re-occupied in December, 1899, all the large towns and most of the villages had ceased to exist. Thus, on the old road to El Obeid from Tura, *viâ* Abu Shok and Khursi not a single village or well remained, and the present road from El Dueim to Helba and Bara had to be taken. Bara was found almost deserted, all the old houses and gardens having been destroyed. Khursi, once a large place with a market, had no inhabitants, and has now only a few huts. At El Obeid there was not a single soul, and nothing was left of the old city but a portion of the mudiria buildings. Melhis is quite overgrown, and Abu Haraz is still in ruins. Between El Obeid and Taiara there are now six villages. In January, 1900, there was not one. At Foga, once the headquarters of troops and a telegraph station, the ruins can hardly be traced. At many places in Dar Hamid, hundreds of date palms had been cut down. Everywhere the destruction was wanton and complete.

The only people who successfully resisted the Dervish occupation were the Nubas; living in the hills, they closed the entrances to their villages with defensible walls. They were constantly raided by slave-traders in the old days and so knew how best to defend themselves. But although the Mahdi failed to force these hills, except in the case of a few small and detached ones, the inhabitants all suffered severely, especially from slave-raiding. Mek Geili said in 1900 that he had lost two-thirds of his people, and, judging by the number of deserted houses in his country, this statement is probably not much exaggerated.

Those Arabs who were not taken to Omdurman, and who rebelled against the Khalifa in 1896, fled after Mahmud's

* In 1904 the amount of gum exported from Kordofan is expected to be 219,300 kantars. One kantar = 100 lbs.

raids to the Nuba hills, the Gezira, or Nahud, a place which, though never mentioned by old travellers, had over 4,000 inhabitants in March, 1900, and a large market with traders from the Bahr El Ghazal, Darfur, and Wadai. Many of these people have now returned to their villages, but they are, of course, greatly impoverished and reduced in numbers.

2. *Inhabitants.*

General.

The inhabitants consist of Arabs in the plains and Nubas (or blacks) in the hills. The Arabs are either villagers or nomads; the latter being divided into camel owners (Siat El Ibil) and cattle owners (Baggara). There are no camel owners south and no Baggara north of El Obeid; in the south they are horse and cattle owners.

Nearly all the nomads grow a crop of dukhn, and in the west, where there are no wells, melons are grown for



TAAISHA (BAGGARA) GIRL.

the cattle during the dry season. Portions of these nomad tribes have been obliged to become sedentary in consequence of the destruction of their herds.

Villagers.

The village Arabs own small herds of sheep and goats, a few donkeys, and some cattle, and sometimes a camel or two. Near the river they cultivate the islands and low ground, growing dura, beans, onions, etc., Inland, dukhn, simsim, and melons form the chief crops, with a little cotton in places. Throughout Eastern Kordofan gum is collected largely and exchanged for dura or cotton goods.

Very poor after the defeat of the Khalifa, in consequence of two good years, they are now becoming fairly prosperous. A large area round each hella (village) is under cultivation; in the gum country, the gardens show signs of attention, and both the men and women, instead of wearing the dirty waist-cloth seen when the province was first occupied, now wear Manchester cotton goods very largely. Silver ornaments are becoming common.

They have few firearms, and, as a rule, only carry a spear or small axe, even when travelling.

The most important tribe is the GOWAMA, living between El Obeid and El Agaba, and owning most of the gum country. The Shankab and Mesellemia live on the river; the DAR HAMID tribes and the BEDERIA, near El Obeid, are large tribes, but are now poor. There are several villages of DANAGLA and JAALIN scattered about. Jebel Atshan and Jebel Royan are inhabited by ZAGHAWA Arabs, relations of the large tribe in Northern Darfur, and at Ushut, north-west of El Obeid, there are a few NIMR from Eastern Darfur. Between Hashaba and Jebel Kon the BAZA Arabs have many gardens, and near Yasin, half-way between Jebel Kon and Taiara, the MASSADAB have a few villages.

The nomad tribes are far superior to the villagers, both physically and mentally. The various BAGGARA* tribes live chiefly in Southern Kordofan, and only move north during the rains. They occupy the plains between El Obeid and the Bahr El Arab, and, being constantly in touch with the NUBAS in the hills, were the chief slave-raiders. Their occupations are hunting for meat and skins, and occasionally for ivory, and herding their cattle. They own a good many horses, but when on the move carry their baggage on their bulls. They always carry arms. These consist of a large stabbing spear and small throwing spears. They own a certain number of Remington rifles, but have little ammunition, and their rifles are generally in bad order, as they cut down the stock and fore-end to lighten them and frequently remove the backsight, as it makes the rifle more convenient to carry.

They also carry a broad-bladed straight sword, which, when mounted, is slung over the high pommel of the saddle, the blade resting against the side of the saddle under the left thigh. The large spear (Kibis) is carried in the hand and the small spears (Tabaiig) are hung on the off side in a kind of quiver (Turkash). Shields are not used. A few of the richer men wear chain armour. They are by far the most warlike people in Kordofan, and are inclined to resent being no longer allowed to raid the blacks. The most important tribes are the HAWAZMA, between Sungkai and Jebel Eliri; the MESSERIA, near Sinut; the KENANA, between Lake No and Tendik; the Selim, on the White Nile south of Dar El Ahamda (a branch of the tribe situated in the Gezira and Upper Nile Provinces), the HABBANIA, now a small tribe at Sherkeila. The HOMR, south of El Eddaiya towards the Bahr El Arab, are a large and fairly rich tribe; and the GIMMA, near Gedid, the majority of whom, however, have permanent villages.

The camel owners (Siat El Ibil) are less numerous, and live entirely in Northern Kordofan, only moving as far south as El Obeid when the water and grazing further north is exhausted. This depends, of course, on the rains. In the winter of 1902-03 the Kordofan tribes were all south of the Shageig-Kagmar road by the beginning of December. They are by far the pleasantest-mannered Arabs to meet, being independent, but hospitable and polite, though perhaps no more honest than the rest.

They live chiefly on camel or goats' milk (the former is excellent) and dukhn; the latter they grow as a rain crop or buy with money earned by carrying goods, or else in exchange for sheep and goats. During the rains they all go north and east towards Dongola and beyond the Wadi Melh. Though most of the tribes still own herds of camels, goats, and sheep, large portions of some tribes live in villages and cultivate.

Of the camel-owning tribes in the province, the HAMAR, once a large and prosperous tribe owning thousands of camels, now reduced in numbers, own but a few hundred. They have a good many sheep and goats. Their country (Dar Hamar) lies between Dar Hamid and the Darfur frontier. A large proportion of this tribe have now settled down in their former villages and cultivate near Nahud, Um Bel, and all along the frontier between Foga and Taweisha.

The KABABISH still own many camels. They claim the country north of Kaja Katul and eastwards to Gabra.† Their great watering-places are Gabra, El Safia, Habisa, and Kagmar. A great part of the tribe under Sheikh Ali Tom suffered very heavily from the Dervish rule, and for having supplied us with camels in 1884-85, they had to face the vengeance of the Mahdi when we abandoned the country. Their cultivation is west of Omdurman.

The SHENABLA graze their flocks and herds in Dar Hamid, but keep many goats and sheep near Shat. The BENI JERAR, now a small tribe, generally water their camels at Kagmar, but have cultivation near Shat, Um Deisis, and in the Busata district. Both the SHENABLA and BENI JERAR were formerly under the head sheikh of the Kababish, but separated in Dervish times.

The KAWAHLA live north-west of Shageig, where they water during the dry season. They own many camels and do a good deal of carrying trade.

In the northern hills the inhabitants called NUBA ARABS speak Arabic and have copied the habits of the village Arabs. They are black and have woolly hair but their features are more prominent than is the case with the southern tribes: they are not negroes. They live chiefly in straw tukls at the foot of their hills, though at Jebel Haraza some still live on the hillside. At Jebel Um Durrug the ruins of a very large village can be seen on the north side of Jebel Kershungal (the highest peak), near the largest well (a crack in the rock). At Jebel Abu Hadid there is also a large

* See table of Baggara Genealogies on p. 334.

† Gabra, north-west of Omdurman, must not be confused with Gabra El Sheikh, near Kagmar.

ruined village on the side of Jebel El Hella. At Jebel Atshan and Jebel Maganus, now entirely deserted by the Nubas, the ruins of small circular stone huts can be traced.

In the southern hills, as at Jebel Tagale, Jebel Daier, Jebel El Joghub, etc., the natives are pure, or nearly pure, NUBAS, and speak Nuba, though most hills have different dialects. But there are also several hills occupied by escaped slaves. These consist of negroes of mixed origin, and call themselves after the tribe they escaped from. Thus at Jebel Eliri there are HAWAZMAS and KAWAILAS; at Jebel Krondi, HAWAZMAS; and at Jebel Talodi, HOMRS. They speak Arabic, and have little intercourse with the NUBAS.

The NUBAS are split up into innumerable tribes, each under a mek, who is generally on bad terms with his neighbours. Mek Geili, of Tagale, is one of the most powerful. He is a Jaalin by extraction; it is not uncommon for the mek to be of Arab descent. Each mek is assisted by a "kugur," who acts as chief rain-maker and adviser to the tribe, his power being dependent chiefly on his astuteness. He is often the only man who can speak any Arabic.

Living in the zone of good rains they raise large crops of dura round the base of their hills. They make, in good years, large quantities of merissa (native beer), and drunkenness is very common. They own a good many cattle.



NUBA WOMAN, DAUGHTER AND BABY.

The men, as a rule, wear no clothing, and the young women are usually contented with an elaborately plaited head of hair and a girdle of beads, from which a strip of cotton 3 or 4 inches wide depends, both in front and behind. But in places the latter garment is replaced by a strip of dom palm an inch wide. The married women generally wear either a cotton robe or a goat or sheep-skin. In many places the whole body is covered with a mixture of red clay and oil; and each tuft of hair, which is generally very short, is covered with a lump of red clay to make it stand out at right angles to the head. Cotton clothes, are, however, gradually coming into fashion in the less remote hills.

In most of the hills there are a good many rifles, but ammunition is scarce. The Remington rifle is the most common, but old Italian ones, magazine and single-loaders, are seen. Ammunition is manufactured locally, match-heads being often used as a substitute for caps.

A man who owns a rifle, even if his bandolier be empty, always carries it for appearance sake. In January, 1900, it was estimated that Mek Geili alone had 1,500 rifles. The other arms carried are knob-kerries and spears, but no shields. The blacks chiefly fear being raided by horsemen when they are cutting their crops on the plains at the foot of their hills. To disconcert the Arab horsemen they leave the trunks of the trees about 2 or 3 feet high when they clear the

ground, and also make pit-falls with spikes at the bottom. A horse running against one of these stumps hidden in the dura gives his rider a bad fall and enables the fleeing black to turn on his pursuer or escape to the hills. Their houses used to be always built high up on the hill, and any gullies or valleys closed by stone walls high enough and strong enough to be easily defended, but now they are beginning to build in the plains. They also take care, as a rule, to have water inside their defences; they were thus able to hold out successfully against the Dervish expeditions which were sent against them from time to time. It is also probable that having been constantly raided for slaves by the Government troops they had discovered the best means of escape and of defence even before the Mahdia.

It is difficult to say how they will develop now that they no longer live in fear of the Arab. They are lazy, but have had no inducements to work. Easily angered, their quarrels do not seem to last long; in fact, they are primitive children who require constant watching lest they become unmanageable, and constant protection lest other races abuse their ignorance, improvidence, or credulity.

In a few places, such as El Dueim and El Obeid, there are mud houses with flat roofs. But the natives mostly live in conical-shaped straw huts (tukls) or in box-shaped shelters called "rakubas." The house is generally surrounded by a thorn fence, inside which the sheep and goats are kept at night. Habitations.

Tukls are cylindrical buildings with conical roofs. They are generally built by driving forked stakes (shab) into the ground in a circle from 10 to 20 feet in diameter. A circle (kara) of similar size is then made, apart from the other circle, of strong tough twigs tied together every few inches with strips of bark. To form the roof, four poles are tied together at their small ends and the butts pushed into the kara to form a cone. A small circle of twigs is then lashed on near the top and more poles placed with their butts in the kara and their tops lashed to the upper circle. As many more horizontal bands of twigs as the size of the huts demand are then made, and the whole frame is lifted on to the forks of the uprights. The roof is then thatched with dura, or dukhn stalks, and the walls are built of the same material.

"Rakubas" are box-shaped huts made of poles and covered with grass or straw. They are useless in the rains but excellent at other times, as the walls, while keeping out the sun, let the wind through.

The camel-owning Arabs make tents of woollen blankets. They are exactly the shape of gipsy tents in England. The Baggara tribes make similar tents, but cover them with mats made of grass or reeds and tanned ox-hides called "dilla." The old frames can frequently be seen on deserted camping grounds.

The Nubas, though they vary very much in skill, generally build better tukls than the Arabs. The walls are made of either stone, mud, or wattle and daub, the latter being sometimes ornamented with a pattern in red clay. The roofs are much better thatched than those of the Arabs and are given a steeper pitch.

The furniture of an Arab tukl consists of a few bedsteads (angarib), very short and narrow, and sometimes a mat. The cooking utensils consist of a grindstone (generally outside the door), a stone to cook kisra on, a few wooden dishes for food, some flat baskets and earthenware pots (kantush), spherical in shape, for water. Pillows of wood to support the head are used by the blacks, who go in for extensive head dresses. Small and very light axes are used for cutting wood, they are seldom more than an inch wide and 5 inches long. A dilwa or bucket made of a piece of soft leather suspended from a circle of wood by strings a few inches long, so that it can open out nearly flat at the bottom of the well when water is scarce, is used for drawing water.

Rope is made from the bark of trees, such as the tebeldi (*Adansonia digitata*), sayal (*Acacia spirocarpa*), kittr, and usher, which makes the best. Rope.

Fire is made by twirling a stick of marakh (*Leptenia spartium*) on a piece of usher (*Calotropis procera*), or if no usher is available, two pieces of marakh are used. Two pieces of hard wood are also used at times, sand being put in the hole to increase friction. Fire.

3. Towns.

EL OBEID.—El Obeid, the capital of Kordofan, is situated in lat. 13° 11' north and long. 30° 14' east. Its elevation has been given as between 1,700 and 2,000 feet. It is built on the side of a depression in the centre of which are the wells. These are from 60 to 80 feet deep, and give (except from March to June) a plentiful supply of water for the present population of about 10,000 people, but in former times, when the population was larger, there were frequently water famines.

The old mudiria is still standing and has been repaired. Barracks for a Sudanese battalion and details are being built, and the town laid out in squares. Most of the inhabitants, many of whom only come in for the dry season, live in tukls, but a good many mud-brick houses have been built by merchants. There is a large market, and a considerable trade is done in gum and cattle.

The old fortifications can still be traced in places, but most of the old buildings have disappeared.

The town was held by Mohammed Pasha Saïd against the Mahdi from 3rd September, 1882, till 17th January, 1883,

when it fell (*see* p. 247). It is 158 miles from Dueim on the W. Nile and, therefore, 268 miles from Khartoum. It is 388 miles from El Fasher.

BARA.—Bara is now a small place, but there are excellent gardens there and a small market.

EL DUEIM.—El Dueim, on the Nile, is the port of Kordofan. Most of the merchandise for the interior is landed there, and gum is shipped to Omdurman. There is a good market. (*Vide* p. 56 for description.)

NAHUD.—Nahud, situated 165 miles west of El Obeid and 80 miles south of Foga, is a new town of some 7,000 inhabitants. It is not mentioned in any of the old accounts of Kordofan, as before the decline of the Dervish rule it was a small place populated by Hamar and people from the river, such as Jaalin, Danagla, etc., who had originally gone out to trade in slaves. Gradually people collected there, so that the inhabitants consist of every tribe in Kordofan, the Hamar predominating. All the trade with Darfur passes through here, and there is a large market where cotton and trade goods can be purchased. Cattle is the chief trade. Gum is not in any demand, owing to cost of transport. Feathers and ivory are obtainable in fairly large quantities. India-rubber is brought in in small quantities. There is little crime there now; the market has been built, and there are some 40 good mud-brick shops owned by Greeks, Syrians, Jaalin, Danagla, etc. Dukhn is plentiful. When the town was first occupied drunkenness was very common amongst both sexes. Dura, simsim, and cotton are also brought into the market. It is the second town in Kordofan, and is increasing.

TAIARA.—Taiara, formerly the centre of the gum trade, was destroyed by the Dervishes, and in December, 1899, consisted of but six huts. It is now the headquarters of a district and has a good market. There are several gum merchants there, besides agents of Omdurman firms. The place is rapidly growing.

4. *Animals.*

- Cattle. The Baggara tribes have large herds of the hump variety, but they are seldom anxious to sell them. They are small, but their meat is of good quality. The bulls are used as pack-transport animals and are extremely docile. Cattle are generally watered every second day, but if grazing is scarce and they have to go far from the wells, it is not uncommon for them to go three or even four days without water. This applies especially to the cattle in Northern Kordofan. There is also a smaller humpless variety.
- The Nubas own considerable herds but seldom sell them. Like the Dinkas and other blacks they regard cattle as a form of wealth which enables them to obtain wives.
- Camels. These have also decreased to a terrible extent. The Kababish, Kawahla, Shanabla, Hamar, and Beni Jerar, who formerly had the whole of the carrying trade of Kordofan, are now hardly able to cope with it. All over the gum country Hawawir and other northern tribesmen are to be found with caravans of camels. The Hamar have almost ceased to be a camel-owning tribe, and it must be years before the supply of camels is at all large. The villagers own few camels, and the Baggara tribes none, as they cannot live south of lat. 13° 30'. In the Dinka country to the south it is not at all uncommon for people, especially children, to fly in dread at the sight of a camel.
- Horses. The Baggara tribes own a good many horses. Some are ugly animals, all head and tail, and not up to much weight, but the larger proportion are small horses, up to weight, good looking and well bred. The Dongalawi horse is prized, but it is now scarce; horses, or rather ponies, are also imported from Abyssinia. These are far inferior, but ridden by Arabs they are more suited to the country, being very hardy. If trained they can do 60 miles without water and do not seem to suffer. Their price is generally £E.3 to £E.5, but a good one runs to £E.18.
- Donkeys. There are a good many donkeys, chiefly among the villagers. Like the horses they can go for a couple of days without water. From Zereiga to Bint Joda (50 miles) or from Abu Zabbat to Nahud (65 miles) are quite common marches for donkeys.
- Sheep and goats. Large numbers of sheep and goats are owned by all tribes. In the south there is a small and very active breed which seems to carry more meat in proportion to its size than the ordinary Arab breed.
- Game. Elephants are found in Dar El Homr, Dar El Ahamda, Dar El Tagale, and Dar Jange. Elephants are very numerous in Dar El Homr from May until June, when they travel to Dar Fertit and towards Lake No. Rhinoceros (both black and "white") are found in Dar El Homr and Dar El Rizeigat. Buffalo are found in Dar El Homr, Dar El Nuba and in Dar El Ahamda. Lion, leopard, and cheetah are found all over Kordofan from south of Kaja Katul, and are very numerous in the south. Giraffe are found south of El Eddaiya and are very plentiful all over Southern and South-Western Kordofan. Roan-antelope are found in Southern Kordofan. Kudu are found scattered all over Kordofan; most plentiful in Kaja and Talodi districts. Hartebeeste (*Jacksonii*) are very plentiful in Southern Kordofan.

Tiang are plentiful in S. and S.E. and in Kaja and Foga districts; there is a different species to that found on the White Nile, etc., which has been identified as the "*Damaliscus korrigum*" of West Africa, *vide* App. C.

Oryx (white) are found in Dar Hamid and Kaja districts.

Ril or Addra Gazelle are found all over Northern and North-Western Kordofan, but are local. They are not found elsewhere in the Sudan.

Addax are found north of Jebel Fas. Rare.

Ariel are found near Gabra and as far south as Fachi Shoya, but not very far west of White Nile.

White-eared cob (*Cobus leucotis*) are found on the White Nile and in Dar Jange.

Mrs. Gray's waterbuck are found in Dar Jange.

Waterbuck (two kinds) are found on the White Nile and in Dar Honr.

Reedbuck are found in Southern Kordofan.

Oribi, duiker, dig-dig, bushbuck, gazelle (four kinds) and warthog are found in most places south and south-west of Keilak.

Gazelle (three kinds), viz., *Rufifrons*, *Dorcas*, and *Isabella*, are plentiful in various part of Kordofan.

The "harnessed antelope" and eland are said to exist in the south.

Hares, quail, partridge, jungle-fowl, bustard (four kinds), and guinea-fowl are plentiful in the south up to Small Game. January.

5. Climate and Health.

The year in Kordofan is divided into three seasons, viz. :—

The Kharif, or rainy season, which commences usually about 15th of June and lasts until the end of September.

The Shita, or cold weather, from the beginning of October to the end of February.

The Seif, or hot weather, from March to the middle of June.

THE RAINY SEASON.*—Towards the middle of June the wind changes to the south, and heavy clouds begin to collect in that quarter. These, in a very few days, bring a storm of rain, usually heralded by strong wind, clouds of dust and sand, and thunder and lightning. These storms appear every two or three days. Although a steady rain falls, occasionally for 24 days, it usually comes in the form of stormy showers. As the result of these showers, by the end of July, the ground, even in the villages and around Government buildings, become covered with rank green vegetation, which defies all efforts to destroy it. The rank smell from this grass, the numerous frogs, toads, and other reptiles it harbours, and the general lassitude produced by these surroundings, render life anything but enjoyable during the day, whilst sleep inside one's house is rendered well nigh impossible at night by the steamy moistures of the air and attacks of sand flies and mosquitos.

THE COLD WEATHER.—Towards the end of September the wind begins to blow from the north and a great change takes place. The fever decreases, until by the end of November there are only a few cases in hospital. The weather is delightfully cool and the breezes bracing and refreshing.

THE HOT WEATHER.—The heat in El Obeid and Western Kordofan is not as great as in other parts of the Sudan; the maximum temperature being rarely above 106° Fahr., whilst the nights remain delightfully cool until the rains appear.

Altitude above the sea level, compiled by Major Prout, 1876 :—†

	Feet.	
Helba	1,381	
Bara	1,622	Wells 20 feet deep.
El Obeid	1,919	„ 80-130 „ „
Faki Don	1,743	„ 120 „ „
Hamdaui	1,734	„ 110 „ „
Magenis	1,820	„ 80 „ „
Um Dobau	1,704	„ 15 „ „
Gumburra	1,853	
Tibri	2,072	
Um Ratali	1,994	
Shitangul	1,998	
Aboir Tine	1,789	
Abu Sinun Hella	1,928	

* The rainfall at El Obeid from March to October, 1904, amounted to 12.16 inches; the maximum temperatures registered in 1904 were 108° in April and 107° in May, the lowest being 45° in February.

† Some of these names are not now recognisable.

Health.

Most diseases in Kordofan may be included under one of two heads—malarial and venereal. Were it not for these classes of disease Kordofan might be considered a healthy country.

MALARIA.—The fever is, perhaps, more often of the remittent type. Those attacked for the first time almost invariably have remittent fever; the subsequent attacks are either remittent or intermittent. During January and February, which are otherwise healthy months, a particularly sudden and severe type of remittent fever has been noticed. A patient, previously well, will lose consciousness in the course of an hour, and either die in a state of coma or only recover after weeks of convalescence. This apparently is the result of malaria contracted during the rains, as Egyptian and British officers who have spent a wet season here and afterwards left the district, have been attacked in this way whilst on leave in Cairo and England. The good effect of hypodermic injections of hydro-bromide of quinine in fever of this kind is worth recording.

VENEREAL DISEASES of every kind rage, except in Dar Nuba, where the people make great efforts to prevent the spread of these diseases. Travellers should take precautions to prevent their guides and servants drinking out of their water-bottles.

WATER-BORNE DISEASES.—Of diseases traceable to an impure water supply there has been a remarkable freedom in El Obeid itself. In this garrison there have been only a few cases of dysentery and diarrhoea during the last three years. Amongst the inhabitants of the country further south, who derive their water supply from rain water collected in hollows during the rainy season or from shallow wells during the dry season, this is not always the case, as many cases of dysentery, tape worm, guinea worm (very prevalent), etc., coming from these parts testify.

GUINEA WORM.—With regard to the guinea worm, there is not sufficient evidence to prove that it is contracted by washing or wading in water, as the natives state. It in all probability is taken into the system with drinking water. To avoid this pest all surface water or water that is likely to have been fouled by the natives wading in it (for the ova are introduced into the water in this way) should be boiled before being drunk.

SMALL-POX is still common in the southern part of the district, and the faces of many of the inhabitants are scarred in consequence.

PNEUMONIA is common amongst the blacks during the cold weather, and a great many camels die from this disease.

SECTION 2.—DARFUR.

Historical.*

Darfur was formerly one of the line of ancient African Kingdoms stretching across the Continent from west to east, of which Wadai and Abyssinia are the only ones still surviving† as independent states. Up to the early part of the 18th century the Kings of Darfur had dominion over the country as far east as the Atbara; but the war-like Fungs, who at that time were one of the most powerful tribes of the Sudan, gradually drove the Darfurians back, and established their own authority on the banks of the White Nile. *Vide* p. 229.

In 1770 they wrested the Province of Kordofan from the Darfur kings, but five years later it was retaken by the latter, and remained under their control until conquered in 1822 by Mohammed Bey Dafterdar, the brother-in-law of Ismail Pasha, who was burnt at Shendi.

After the loss of Kordofan the Darfurians retired westwards and the kings then governed only a circumscribed area, of which Jebel Marra was the centre. This is the Darfur that was conquered and annexed to Egypt by Zubeir Pasha in 1874 and which is the Darfur of the present day.

Present boundaries.

Modern Darfur in shape is a more or less regular parallelogram, 400 miles by 400 miles, and may be said to lie between N. Lat. 10° and 16° and E. Long. 22° and 27° 30'.

It is bounded on the north by Dar Bedaia and the desert west of the Wadi Melh; on the east by Kordofan,‡ the frontier running from Kaja Serrug (Darfur) in a south-west direction to Dam Jamad (Kordofan) and thence in a southerly direction to the Bahr El Arab and Dar Fertit; Dar Habbania and Dar Taaisha belonging to Darfur. The western boundary leaves Dar Sula and Borgu or Wadai within the French sphere of influence and Dar Gimr and Dar Tama to Darfur.

Drainage.

The watershed of Darfur, which forms part of that separating the basin of Lake Chad from that of the Nile, runs nearly north and south through the centre of the country. The chief features which define it are in the North Jebel Meidob (3,500 feet) connected with Jebel Tagabo further south by a plateau, the greatest altitude of which is about 1,200 feet, and further south Jebel Marra and its offshoots. To the south-west of these mountains, the main peaks of which rise to an altitude of some 6,000 feet, the plain is about 4,000 feet above the sea.

* Chiefly from "Fire and Sword in the Sudan."

† It was rumoured at Omdurman (May, 1904) that Abesher, the capital of Wadai, was occupied by the French on the 20th December, 1903. This rumour, however, appears to be unfounded.

‡ For detail of frontier, *vide* App. G, p. 337.

As might be expected the general direction of the drainage is east and west. In the north the country is so arid and the rains so meagre that the water draining eastwards towards the Wadi Melh soon sinks into the sandy soil and disappears. Similarly, further south the Wadis, chief of which is Wadi Ko, draining the east and south-east of the Marra group and which flow generally in a south-easterly direction towards the Bahr El Arab, an affluent of the Bahr El Ghazal, seldom if ever discharge water into that river. The Wadis Bulbul, Gendi, and Ibra, however, which spring from the more southern slopes of the watershed and also trend south-east, are believed to convey a considerable quantity of water into the Bahr El Arab during the rainy season.

To the west of the watershed the general trend of the wadis is south-west, the Wadi Sonot and Kia in the north, with their affluents draining the hills of Dar Tama, and most important of all the Wadi Azum which carries the drainage from the western slopes of Jebel Marra are thought to unite near Dar Sula and to flow, under the name of Bahr El Salamat, towards Lake Iro, though it is doubtful if their waters ever reach this marshy swamp which, in turn, drains into the Shari.

The drainage of the south-west of Darfur flows towards the River Mamun, a perennial stream, also an affluent of the Shari, which, of course, empties into the southern end of Lake Chad.

Broadly it may be said that the country to the north and east of the Marra range resembles that of Kordofan in its character and usual dearth of water, whilst to the west, south-west, and south it is much better watered and more fertile. During the rains water is here everywhere plentiful, whilst at this season much of Southern Darfur becomes marshy and difficult to travel over. In the rainy season too the principal wadis, especially those in the south and south-west, are perfect torrents, and, although their beds are dry soon after the cessation of the rains, water is generally to be found in abundance held up by the clayey strata at a few feet below the surface. In Eastern Darfur the wells are of considerable depth and at great distances from each other, especially south of Dara and Taweisha, and the people are dependent to a great extent on water melons (*batikh*) and to a less extent on Tebeldi trees (*Adansonia digitata*) which are such a feature of Dar Hamar, the adjoining district of Kordofan. Water supply.

The deepest wells are at Karnak, where water is only obtained at 250 feet. At Burush on the Fasher-Obeid road and on the road to Taweisha, and at Taweisha itself, the wells, which pass through strata of chalk and marl, average from 100 to 130 feet in depth.

At El Fasher the wells are of no great depth and at the end of the dry season water is obtainable at 35 feet.

The nearer one approaches the central group of mountains the depth at which water is found diminishes. At 3,200 feet above the sea it is found by excavating in the sandy beds of khors, but at 4,000 feet there is running water which becomes more abundant still further to the west of Jebel Marra.

The geological formation is very varied; in the west the mountains show a volcanic origin; in the north and south granite and sandstone are the prevailing rocks; in the east the soil is sandy and contains a quantity of iron, which is worked to a small extent. Geology.

In the east and north-east, granite predominates, with the exception of a strip between Foga and El Fasher, where red and white sandstone crops out.

In the north, Wadi Melit and the hills in its neighbourhood are of gneiss. To the north-east of this, granite again predominates at Saya, whilst still further north, Jebel Tagabo is of sandstone.

Jebel Meidob contains both sandstone and granite; this group has been much distorted by volcanic agency, and beds of lava are to be seen in all directions. To its south-west lies Bir El Melh,* an extinct crater, which to outward appearance is an insignificant hill, but has a depth of about 150 feet. Here is a small lake strongly impregnated with alkaline matter, while sweet water springs issue from the sandstone and granite declivities.

The Jebel Marra group is also of volcanic origin; lava and granite are to be found everywhere, but there is no sandstone; small peaks of pink granite crop up here and there between these mountains and El Fasher.

Stretching from the main group in a westerly direction for a distance of 30 or 40 miles is a huge dyke of white quartz with a sandstone plateau raised some 300 feet above the plain which is itself about 3,200 feet above sea level.

The inhabitants report a large lake of brackish water, from which salt can be obtained, on the north-eastern part of the mountain; while, at a day's journey to the west, salt is also found at Karunga, and the Wadi Burkā is strongly impregnated with soda.

In all the depressions sand rich in iron is met with.

In a southerly direction from Jebel Marra, there stretches a broad alluvial plain which is dotted all over with peaks of granite, giving the impression of a range of mountains, buried all but its highest points.

The original tribes of the country are the FORS and the DAGO; the latter ruled for centuries over the entire district from their inaccessible strongholds in Jebel Marra. Tradition relates† that about the 14th century the TUNGUR Arabs, emigrating south from Tunis, scattered throughout Bornu and Wadai, and eventually reached Darfur, Inhabitants.

* Not to be confused with Bir El Melha on the Arbain road west of Debba.

† Taken from "Fire and Sword in the Sudan."

the first arrivals being two brothers, Ali and Ahmed, who settled with their flocks on the western slopes of Jebel Marra. Of these brothers, Ahmed, nicknamed El Makur, was destined to become the founder of a new dynasty in Darfur. He became very popular with the then king Kor who not only gave him his favourite daughter as wife, but nominated him as his successor to the throne. Accordingly on Kor's death Ahmed succeeded to the throne of Darfur, and on the news spreading to the Tungur of Wadai and Bornu, they flocked into the country in such numbers as to partially displace the TEIGO. The only small settlements now left of the former rulers are near Dara, where there is a Dago sheikh, and also at Dar Sula, a long way to the west, where there is a semi-independent ruler called "Sultan Beklit El Dagawi."

A regular male succession was now established and a great grandson of Ahmed's was the celebrated Sultan Dali, who wrote the Kitab-Dali or Penal Code. Another noted Sultan was Suleiman who took the name of Solon, who being the son of an Arab mother and himself married to an Arab woman, introduced Arab blood into the Royal



DARFUR GIRL.

Family. It was through him, some 400 years ago, that the country became Moslemised, and his descendants now proudly boast of their Arab descent and quite ignore the black element which is undoubtedly there, and which may account for the bitter enmity which exists between the ruling Darfur family and the Nomad Arabs of the country. At the end of the 18th century Sultan Abdel Rahman married a BEIGO girl and her son, Mohammed El Fadl, became Sultan about the beginning of the next century. The BEIGO tribe, originally slaves, were from that time declared free.

To turn to more recent times, Darfur has during the last 20 years been so devastated and depopulated that many formerly important tribes such as the MAHARIA, NAWAIBA, MAHAMID, EREIGAT, BENI, HUSSEIN, etc., have become so disintegrated and scattered that they now practically cease to exist as tribes and are seldom heard of.

The population of Darfur, prior to the Mahdi's revolt, was estimated at 1,500,000. It is now probably less than half that number.

Fors. The MASABAT and KUNJARA, the ruling class of FORS, have their centre at El Fasher.

The FORS are clean and industrious. They may be found assembled under trees spinning, weaving cotton or plaiting mats, whilst the children will be herding the cattle. The men wear a jibba and drawers of coarse cotton stuff, whilst the women wear a piece of the same stuff made fast round the hips with the end thrown over the shoulder.

They live in tukls or conical huts, five or six of which arranged in a circle form a habitation.

Compared to other tribes, they are exceedingly clean feeders and very particular as to the manner in which their food is served, though corn and merissa are the main articles of consumption.

They are religious and fanatical, and study the Koran assiduously.

The mountainous stronghold of Jebel Marra is inhabited by the JEBELAWIN, the aboriginal inhabitants of Darfur.



OLD WOMAN OF DARFUR.

Other important tribes are in the north the ZAGHAWA and ZEIADIA, in the east the BERTI and KAJA, in the south-east the MAALIA and RIZEIGAT, and in the south the BENI HELBA, HABBANIA and TAAISHA. The four last-named tribes are Baggara.* In the west are the MASABAT and TAMA. Arabs, etc.

In addition to these Darfur has a large sedentary population amongst whom are found the following tribes: MIMA, BIRGED, BEIGO, and GIMR, etc.

The present ruler of Darfur is Sultan Ali Dinar, a grandson of Sultan Mohammed Fadl; he was kept a prisoner at Omdurman during the Mahdia. In September, 1898, immediately after the defeat of the Khalifa at Kereri, he escaped to his native country. He now pays an annual tribute to the Sudan Government by which he has been officially recognised as its Agent in Darfur.

* For description of the Baggara Arabs, *vide* p. 179, also their Genealogical Table on p. 334.



By kind permission of

THE DARFUR MAHMAL PASSING THROUGH OMDURMAN, 1904.

M. Venturini, Khartoum.

The management of the internal affairs of the country is left almost entirely to the sultan, though the Sudan Government sends him instructions and advice on certain matters from time to time as occasion arises. His judgments on all administrative questions are based on a combination of the Sharia Mohammedia and common law. Administration.

The sultan maintains an army, organised on Dervish lines, of some 6,000 rifles, mostly of a more or less antiquated description. In case of need he could probably mobilise upwards of 2,000 horsemen. His chief commanders are Mohammed Ali Dedingawi, Adam Rijal, and Kamar El Din. The greater part of the army is quartered at El Fasher: the principal outlying garrison (about 500 men) is at Jebel El Hella on the Fasher-Obeid road. Army.

Though in 1874 it took Colonel Mason, with a large caravan, from 100 to 150 days to reach Fasher from Cairo, nowadays a letter from Cairo could reach Fasher in 30 days without any difficulty. Communications.

In the old days the telegraph extended to Foga, now the furthest point to which it is proposed at present to extend it is Nahud, which is on the western frontier of Kordofan, and about 10 days' camel ride from El Fasher.

There are two routes from Omdurman to El Fasher. That most generally used is *via* El Obeid, Nahud, and Jebel El Hella. The other, which has hitherto been avoided by merchants owing to the number of robbers in the neighbourhood of Kaja Katul, and Serrug, lies to the north of El Obeid, and, after passing the two above-mentioned places, joins the El Obeid-Nahud route at Jebel El Hella. Both are described in the route reports in Vol. II. (1) With Omdurman.

There are three routes from Fasher to Abesher, the capital of Wadai. The direct road known as Sikkat El Masalat passes *via* Kebkebia (Darfur) and Bir Tawil to Abesher. This is not much used, in fact Ali Dinar has forbidden merchants or pilgrims to use either this or the northern route, as at Kebkebia there is a Fiki named Senin who has defied all the sultan's efforts to induce him to tender his submission, and this road is consequently unsafe. (2) With Wadai.

The northern route runs through Kutum, Dar Zaghawa, Dar Gimr, and Dar Tama; this is known as Sikkat Zaghawa. Owing to recent disturbances in Dar Zaghawa, this road is temporarily closed.

The southern route leads *via* Keibe and the Wadi Azum to Dar Sula and thence northwards to Abesher; this is known as Sikkat Dar Sula, and is the longest of the three, but it is comparatively safe.

Trade between Darfur and other parts of the Sudan has increased a good deal of late. The principal imports from the Nile are cotton goods (gomash), sugar, and tea; the exports are feathers, ivory, pepper, rhinoceros horns, and tobacco. The ivory, as a rule, comes from Dar Jange and Dar Fertit in the south. Owing to the recent disturbances in Wadai, ivory that formerly was exported through that country has been finding its way *via* El Fasher to Omdurman. A good many camels and cattle are imported from Wadai and are exported again *via* Nahud to the Nile. Trade.

A royalty of about 20 per cent. is taken on all ivory and feathers leaving Fasher, where the price of ivory is from £15 to £16 per 100 lbs. Customs.

Every laden camel entering Darfur pays PT.150 to PT.180, and each laden donkey PT.30 to PT.60.

The taxes are three in number, Oshur, Zika, and Fitra. Oshur tax is assessed at the rate of $\frac{1}{10}$ th of the harvest, whilst Zika is 2 per cent. on all property animals, goods, or money. Taxes.

The sultan has ordered that the present Egyptian coinage shall be current in Darfur, but merchants, finding they lose by it, are not anxious to introduce it. At present the principal coins in use are "Girsh Kabashi," 20 of which equal one rial Mejidi, the equivalent of PT.16. Currency.

There are also a few "Girsh Garagandi" in use, these are of the same value as the "Kabashi."

Camels are the best transport animals, except in the mountainous and southern regions, where mules, donkeys, or bullocks would be preferable. Transport animals.

The climate, of course, varies considerably. Fasher is healthy. In the south, where the rains are heavier, there must be the usual malaria at certain seasons. The climate of Jebel Marra is said to be cool and healthy. Climate.

The people of Darfur, as a whole, are followers of Islam, but the negroes in Jebel Marra, the Jebelawin, and those in the south and south-west have no religion. The late Sheikh Senussi wrote three times to Sultan Ali Dinar asking him to prepare Zawias for him, and to otherwise further his doctrine. Ali Dinar, however, considered it best to politely hold aloof from him, and there are now no Senussiites in El Fasher. Religion.

PRODUCE.

The country may be divided into three sections with reference to the vegetation, *i.e.* the eastern zone of sandy steppes, the central mountains, and the western zone.

In the eastern zone, the cultivation of corn, in the shape of dukhn and a little dura, is the chief industry. A small quantity of simsim, cucumbers, pumpkins, and water melons are also grown. In certain depressions of the ground, where the presence of clay gives a stronger soil, cotton is produced, but in no great quantity. Corn.

The northern part of the country is almost uncultivated ; and in the west, agriculture is pretty much the same as described for the eastern portion, except that owing to the greater quantity of water, more vegetables are grown.

The central mountainous district is the best watered and richest, and accordingly the most thickly populated. Small terraces, upon which gardens are laid out, are constructed all over the slopes of the hills. Here barley, wheat, dukhn,* dura, simsim, pumpkins, and melons are grown. In the small water-courses, onions are planted during the dry season. Honey of very good quality is collected in Jebel Marra.

Cotton. The cotton grown formerly was excellent. Now very little is grown. Arabs manufacture from wool a coarse material, but the Fors are ignorant of the process of its manufacture.

Salt. The production of salt is carried on in many parts of Darfur.

Camels. Camel breeding is the principal pursuit of the Arabs in the north and east of Darfur. North of 14° lat. camels used to be very numerous ; they are now comparatively scarce. The Zeiadia, Maharia, and Bedaiat are the principal breeders.

The Arabs who breed camels occupy themselves with no other industry, and have even to buy the corn used in their households, which, with camel's milk, satisfies all their wants.

Cattle. In the south, among the sedentary inhabitants, cattle and sheep are to be found in abundance.

The cattle are of two kinds : the humped species and the so-called African species, with long horns. The former are compact, well-made animals, and become very fat ; the others are not worth much.

Sheep. The sheep have but little wool, but their flesh is good ; among the Zaghawa there is a species with long curly hair. Zaghawa is leased to the present sultan's sister, Miriam Tajer.

Goats. Goats abound everywhere.

Horses. The Baggara Arabs confine themselves chiefly to breeding cattle and horses. The Messeria are large horse-owners.

Horse breeding is largely carried on by the Mahamid tribe. The horses are small in size but very strong, and are said to be able on an emergency to travel for 60 hours without water. They are chiefly of a local breed (Tama).

The sultan has a stud farm in the Zeiadia country, with the object of improving and reviving the breed of horses.

Towns.

El Fasher. The old capital was Kobe, but at the end of the 17th century it was moved to El Fasher which is now the chief town. Colonel Gordon in 1877 described it as a most miserable place, though once a populous and thriving town under the sultans. It is 388 miles by road from El Obeid, or about 650 miles from Khartoum, and about 300 miles nearly due east from Abesher.

El Fasher or Tendelti stands mostly on the western bank of the Wadi Tendelti or Dindil in an angle formed by the junction of the latter with the Wadi El Ko.

The Tendelti has no current of its own, but is filled during the rains by the overflow from the Ko, and a dam, constructed near the junction, retains the water for some time. The wells supplying the town are all sunk in its bed.

The town now consists almost entirely of tukls and box-shaped straw sheds. There are about five or six mud houses, and the sultan intends to build himself a palace, the plans and material for which have been already sent to him from Khartoum.

On the town side, opposite the old palace, the old Government constructed a square fort with ditch and parapet. This is now demolished.

The population of the town was, in 1875, about 2,650. Of these—1,700 were natives, 300 Zeiadia Arabs, 250 Sâbah Arabs, 400 Melha Arabs. The population is now estimated at about 10,000.

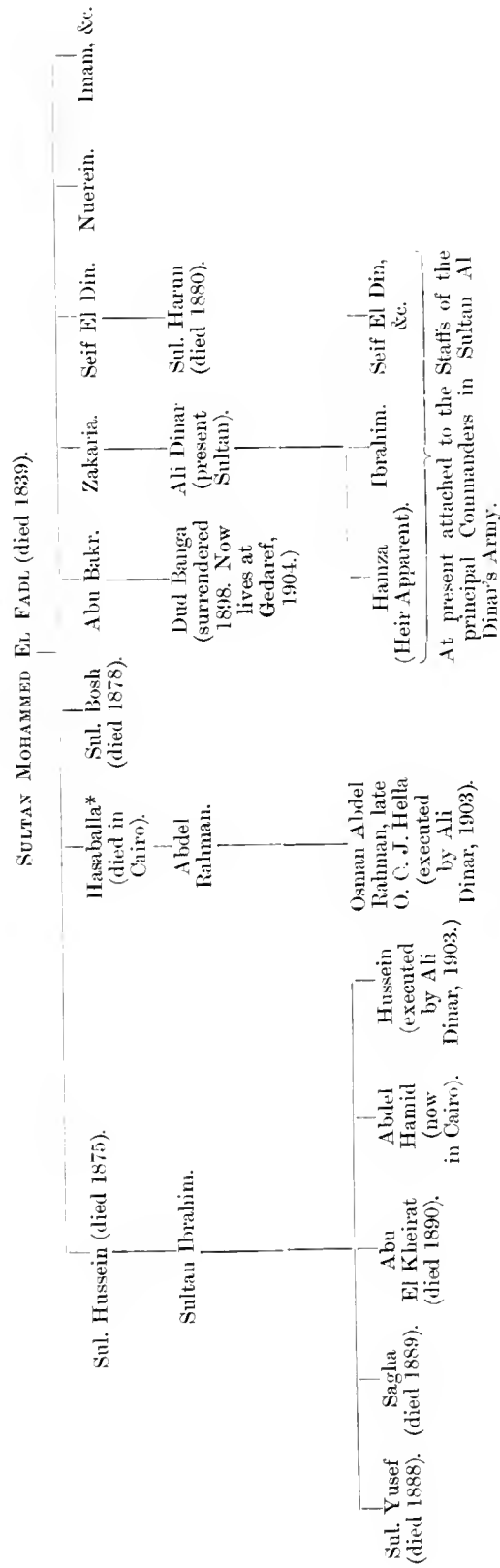
Dara. There are now no other towns of importance. Dara, which used to be second in importance to Fasher, and the headquarters of a mudiria, is merely a small tukl village.

Melit. Melit is the name of rather a populous district in the north. Here there is a plentiful water supply from wells 9 to 12 feet deep in a khor, which also contains many date trees.

Tura. The ancient burial place of the sultans is at Tura in Jebel Marra.

* The dukhn is ready for harvesting 90 days after sowing.

ROUGH GENEALOGICAL TABLE TO SHOW THE RELATIONSHIP OF THE MORE RECENT SULTANS OF DARFUR.



* Mother was not real wife of Sultan.



SHILLUK.

SECTION 3.—THE SHILLUKS AND THEIR COUNTRY.*

The Shilluk nation, the only people in the Sndan who acknowledge one head as immediate ruler or mek, extends along the west bank of the Nile from Kaka in the north to Lake No in the south. There is also a colony along the banks of the Sobat, near its mouth, extending 35 miles up this river to Nagdyeb, and chiefly living on the north bank.

The country is almost entirely a grass country, and as a result its wealth consists almost entirely of cattle.

A large and increasing amount of dura and other vegetables is grown, but it is often barely enough for the needs of the population, and with bad harvests famines are constantly occurring.

Description
of the
people.
Appearance.

Physically, the Shilluks, Shulla, or Ojallo (native names) are a fine race. In colour they are glossy blue-black. The average height of the men is quite 5 feet 10 inches, and that of the women is in proportion. According to European ideas they are narrow in the shoulders and thin in the calves in proportion to their height, but they are capable of sustaining considerable fatigue on short rations, and are courageous and moral in their sexual relations.

Every man carries and cherishes a long spear, with a laurel-leaf-shaped blade and a tuft of ostrich feathers near the butt; when prepared for war he carries also a knob-kerry, an extra throwing spear or two, and a light oblong shield of wickerwork or hide. The hair is twisted by means of a mixture of gum, mud, and cow-dung, into a series of extraordinary shapes, *e.g.*, cockscombs, "tam o'shanter"-like halos, plumes a foot high, knobs, etc., etc. Few clothes are worn, occasionally a twist of cloth or a leopard's skin, but as a rule the men go stark naked. The women

* Compiled chiefly from Reports from Major Matthews, the Rev. Father Banholzer (R.C. Mission, Lul), and the Rev. J. K. Giffen (American Protestant Mission, Sobat). The Editor is under much obligation to Father Banholzer for his kindness in writing him a special description, and to Rev. J. K. Giffen for allowing him to make use of his MS. for part of the Appendix.

are more clothed. A large proportion of the Sudanese battalions are drawn from Shilluks, though no conscription is enforced.

The legendary history and the religion of the Shilluks are related on page 197.

History and religion.

In character they are haughty and independent, and hate foreigners, according to the lessons instilled by the older men who suffered under the "Turks," the Danagla slave-dealers, and the Dervishes. Under the present regime it is hoped that this feeling will die out. They are also crafty, quarrelsome, and untrustworthy as a rule; at the same time they are thick-headed and obstinate; but, as aforesaid, their morals in relation to women are very good; they have a fine sense of discipline, and become very much attached to their leaders, whether black or white; they are exceedingly plucky, and they are the finest warriors in the Sudan.

Character.

The country is thickly populated for its size. Right away from Kaka to Lake No is a continuous string of villages lying about a mile from the river. There are only two points in the whole of this distance at which the interval between villages exceeds two miles, and these are at the points where grazing is bad (between Akurwa and Num, and between Nielwag and Nyagwado). There are, in addition, eight groups of villages which lie 12 to 22 miles inland, away from the river.

Population.

A careful census of the river villages in 1903 gave a result of 1,010 villages, 8,693 domiciles, and 39,312 souls.

Villages.

Shilluk villages are invariably built in a circle, the open space in the centre containing nothing but a meeting-house for men only, and almost invariably a temple erected to a grandfather or great-grandfather of the reigning chief. Each domicile consists usually of three or four tukls, enclosed by a dura stalk fence. The houses are kept scrupulously clean by the women. A family occupies two or three huts; one is reserved for the householder with his wife, another as a cook-house, where merissa is also made, and the third is occupied by the retainers and children of the house. Dr. Schweinfurth records the existence of Shilluk villages of 200 huts. The largest village is Atwadoi, consisting of 120 domiciles, in a district of the same name north of Kodok. The constitutional laziness of the tribe does not prevent their erecting very well-built tukls, and many men are most proficient in thatching the roofs. The crest or peak of the tukl being completed, the workman descends, and a sheep is at once killed by the future occupant and eaten by the workmen, whose reward is completed by a further donation of two sheep.

A wife can be had for a milch cow and four to five oxen, but this is a high price to pay at present. This purchase money cannot be collected by many all their lives. The Shilluks keep one, two, or three wives; a very few exceed this number.

Domestic life.

The Shilluk woman is fruitful; there are some with eight or nine children; three, four and five children seem to be the average issue. In former times, it is said, the number of children was much larger.

Having cost the man much money and trouble the woman is well looked after and treated. Aided by the girls she has she does her house work. She helps her husband honestly in the field. She is permitted to remain for weeks on a visit to her relatives. If disobedient the man gives her a thrashing on the back with a rope end, but this occurs very seldom.

The education of the children consists practically of the phrase, "Do just the same as you see me doing."

The native at home knows of no science or profession, hence schools and house tasks are out of the question. Girls learn from their mothers house, field and plaiting work. The boys are all cattle-tenders. At the age of 13 to 15 years they start the cultivation of a small field, and grow up to manhood by degrees, acquiring the means for a house and a wife.

As long as they are young, children are obedient, but they take no notice of what the parents say as soon as they are able to carry out any work by themselves.

The cultivation carried on during the rainy season requires hard work, which the Shilluk is not inclined to give except for short periods at a time. The soil is, along the river, very rich and black, about 12 feet thick, and is named "do do"; inland it is poorer. Owing to the richness, weeds grow apace, and the land has to be weeded two or three times to avoid the young dura being choked. When gathered, thieves, mice, and elephants reduce the stock considerably, and even when he has produced, by dint of hard work, a fair pile of dura the native does not use it economically, for he eats a great deal at a time, gives generously to his poorer friends, and sells it badly.

Cultivation.

Maize, beans, melons, ful (ground nuts), sesame, and cotton are also grown, but in only sufficient quantities for local wants. The cotton cultivation could probably be extended.

The chief occupation of the Shilluk is, however, cattle breeding. To him it represents property and wives. The amount of cattle in the country is unfortunately smaller than formerly, for it has been reduced largely by the depredations of the Danagla, the Dervishes, and even their own kings. In comparison with the Dinkas they are poor indeed, for a Dinka will willingly part with 20 or more oxen and cows for a wife, whereas the Shilluk can only pay one cow and three or four oxen with difficulty.

Cattle breeding.

The cattle census of 1903 amounted to only 12,173 head of cattle and 63,473 sheep and goats in the whole country,

but they are increasing. The cattle are large and of a good stamp, and breed well, but the sheep and goats (the former of whom have hair, not wool) are small and stunted. Many cattle die every year of disease, in spite of every care being taken. One-sixth part of the sheep and goats, it is said, die during the rains, and these animals are especially exposed, not only to crocodiles, but to glanders and a sort of guinea worm which burrows between the hoofs.

During the dry season herds migrate to different parts of the country, the majority of those owned by the central district crossing over to the east bank of the Nile, to return when the new grass springs up. Similarly the cattle of the Sobat Shilluks descend to the lagoons south of the Sobat and graze with the herds of Obai and Fennikang. All the youths and boys over 10 years old accompany them, leaving their homes for several weeks.

The grass of Shilluk land generally gives little nourishment. Milk is therefore scanty. If one possesses even herds of cows the result in milk is small; curiously enough three or four out of every 10 are barren. A cow is never slaughtered; like man, it ought to expire by itself. Oxen are only killed on festal occasions, such as funeral dinners, etc. Mutton and goats' meat are usually only eaten at festival dinners and ceremonies, or when the animal expires; or in cases of human sickness.

It is therefore very difficult to buy cattle from the Shilluks, for they cannot obtain wives for cash. It is simply impossible to buy a milch cow.

Old soldiers who have returned home to their native land, where they never get a piece of meat to eat, hanker after the flesh pots of Egypt, where they had meat nearly every day.

Crafts. The Shilluks have their own blacksmiths, potters, thatchers, pipemakers, surgeons, boat-builders, and basket and hair plaiters.

The blacksmiths are very skilful; they prepare spears, spades for building, small axes, fishing rods, big harpoons, picks, arm rings, bells and chains, etc. Their handiwork is a travelling one; they take their tools and go about from one place to another. The pay of a blacksmith is good. The employer has to support the man working for him, and makes him a present of sheep besides.

Pottery is the handiwork of the women. They make pots, pitchers, heads for smoking pipes in any form, and make them well. They are paid in food for their work.

The thatchers make not only watertight but also very neat roofs; a skilful European cannot make one better.

Snake stings and damage from blows or spear wounds are numerous. For the treatment of these evils the surgeons are called in. In their work they chop and cut most unmercifully, but although they inflict much pain they often save lives.

To make canoes out of crooked pieces of wood is the work of the ship-builders, and, with the poor tools they have, they make fairly satisfactory boats.

The plaiting of baskets and straw mats is done by both sexes. The species of grass here being not well adapted for plaiting, the production is not grand; however, the result meets the demand.

The nimbus-like and other head-dresses of hair worn by the Shilluks are masterly work.

Families carry on these respective trades for generations, and the father and mother impart their skill to their children and next relatives.

Building houses, carving and polishing clubs and spear sticks and other common work is understood by every Shilluk.

There are villages which are especially distinguished; some in fishing or hunting, some in cattle-breeding, others in cultivating dura, etc.

Occupation. During the rainy season, old and young, men and women, are busy; anyone who visits the country at this time of the year would believe them to be a hardworking people. At this time work is very fatiguing; no European could do it on such a meagre fare as that of the Shilluks. Diseases, fever, dysentery, colds, coughs, and pulmonary ailments are also rife at this season, both among the natives and their cattle.

During the dry season, however, there is not much to do; at most there are houses to be built and repaired, and this is done by young men. The old ones, viz., from 35 years onwards, do nothing but lie about or pay visits.

At this time of the year Shilluks begin to travel. Relatives pay mutual visits, and marriageable young men go to the Nuers and Dinkas with spears, wire, stuffs and dura, which they exchange for sheep and calves.

Industries.
Fishing. Fishing is precariously carried out in shallow waters, either by spearing (horizontally, with bow-shaped fishing spears) or by pouncing on the fish with hemispherical wicker traps somewhat like lobster pots. Neither nets nor fishing lines appear to be used. Hippopotamus hunting is done by combined parties in canoes or dug-outs, harpooning the hippopotamus and despatching him with spears when he comes to the surface to breathe. These animals, it may be remarked in passing, are very savage, doing much harm on the land and gratuitously attacking canoes, etc., in the water.

Climate. From January to April the climate is not bad, though April is the warmest month of the year. June to September constitutes the rainy season,* and from October to December the country is flooded with water; but the marshes and

* Total rainfall at Kodok, January-October, 1904, was 19·4 inches.



SHILLUK WARRIORS.

khors all dry up by April. From November to April the climate, though certainly not perfect, has little effect on a healthy constitution, provided good food, water, clothing, and a house are available. October is perhaps the worst month of the year.

Relations
with the
Dinkas.

The Shilluks do not, as a rule, agree well with the Dinkas, and there are big contrasts between the two races. The Dinka possesses many cattle and prepares his food with milk, whilst the Shilluk has only a few cattle and sprinkles his food with the dust obtained from drying and grinding dura stalks; for this he is despised by the Dinka.

Taken on the whole, the Dinkas are much more intelligent than the Shilluks. When Shilluk boys are unable to find a reply to the pointed remarks of a Dinka boy, they raise their sticks threateningly and say "The Dinka boy has a sharp tongue and must be flogged till he is quiet," which generally stops the rather vulgar expressions used by Dinka boys.

The Dinkas are said to have formerly lived on the right bank of the lower Sobat, but were driven inland by the Shilluks.

Incited by a few Arabs, the Shilluks in former times used to raid the Dinkas and carry away their women and cattle. They however live peaceably now, thanks to the fear they have of the new Government. The two races now and then pay mutual visits, and also intermarry occasionally; a certain amount of trade is carried on between them.

Arab and
other
immigrants.

There are a few Selim Baggara in the neighbourhood of Kaka, but these people appear to visit the district only after the harvest to purchase dura from the Shilluks, which they are too indolent to cultivate themselves.

The Kenana Arabs, under Sheikh Faki Hamed, occupy, though they are not allowed to monopolise, the wells at Atara. They are disliked by the Shilluks on account of their dirty habits.

Another branch of the Kenana Arabs occupy a village close to Fadiang. This branch of the tribe dwells in 60 domiciles. Fama (Sheikh Yogagieb Wad Awel), a sub-district of Nyagir, contains a mixed population of Nubawis and Shilluks; the former cultivate dura largely. They were originally driven into this district by the Khalifa's people when the latter were at Fungor, and under the Sheikh Nail they inhabit five villages, consisting of 104 domiciles, and are subject to the Shilluk Sheikh Yogagieb Wad Awel. In Fama there is also a Gowama Arab village of 40 dwellings, under Sheikh Abu El Gasim, who collected these people at Taiara on the approach of the Khalifa, and permanently settled them in his present village. The list of immigrants to Fama district is completed by the mention of the Hawazma Arabs, under Sheikh Abu El Wahab Walad Handigai. From their own account they are fearless hunters of the elephant.

A sprinkling of Kenana Arabs is to be found temporarily living in villages as far south as Dusim, and a family or two of Felata hail from Jebel Eliri, but these are not permanent residents.

Administra-
tion.

Since time immemorial the Shilluk nation has been governed by a Mek or King, and the list of reigning monarchs since the beginning is known to every well-educated Shilluk (*vide* p. 199). For administrative purposes the country has been divided for a long time into two provinces, that of Gerr (sub-divided into Kaka, or Moama, and Kodok), which extends to Bol (inclusive), and that of Loak, which extends from Fadiet (south of Bol) to Tonga and Lake No.

Each of the three districts is under a head sheikh, residing in Oriang, Debalo, and Nyabanjo respectively, and the whole is subject to a mek or king, elected in a ceremonious manner by all the headmen of the sub-districts.

Up till the last representative, Kur Wad Nedok, the meks had supreme power, which appears to have been wielded in a somewhat arbitrary manner. Wad Nedok was deposed in the spring of 1903 for numerous malpractices, and his successor, Fadiet Wad Kwad Keir, is now limited in power, and is subservient in most things to the Governor of the Upper Nile Province, a British officer resident in the town of Kodok. (*Vide* Chap. I, p. 2).

For administration the country is still further divided into two provinces, the northern and southern, containing 29 districts altogether; the principal ones are:—

NORTHERN PROVINCE.

Name of District.	Name of Head Sheikh.
Ashargo	Kudyit Wad Edor.
Golo	Deng Wad Aiwol.

SOUTHERN PROVINCE.

Name of District.	Name of Head Sheikh.
Awarajok	Lual Wad Agok.
Dusim	Amailek Wad Amosh.
Fennikang	Akurwat.
Tonga	Yang Jok.

Roads.

A good track exists on either bank from Delal, south of Kaka, to Fennikang, south of Taufikia. South of this again many villages can be reached only by crossing deep khors which are filled with water all the year round. The

Lolle river, nearly 200 yards wide throughout, flows past the villages of the districts Tonga and Fennikang. South of the Sobat mouth, a branch of the White Nile flows close to the villages of Dusim, Tuara, Oashi, Awarajok, and Fanmidwai, and emerges into the main stream at a village named Warajok, where the telegraph cable crosses the river. This stream is about 13 feet deep throughout. It is known to old native navigators as the Bahr El Harami; sailing boats with contraband used to take this course in preference to passing the Government station of Taufikia.

There is little game in the thickly inhabited Shilluk country itself. A little way inland, however, elephant, lion, Game, antelope, etc., are plentiful, and more especially is this the case near the river towards Lake No. The neighbourhood of Kaka and north of it is also a grand game country.

APPENDIX.

HISTORY AND RELIGION OF THE SHILLUKS.

In the beginning was Jo-uk, the Great Creator, and he created a great white cow, who came up out of the Nile and was called Deung Adok. The white cow gave birth to a man-child whom she nursed and named Kola (Kollo); Kola begat Umak Ra or Omaro, who begat Makwa or Wad Maul, who begat Ukwa. These people lived in a far off country, nobody knows where. (Bahr El Ghazal (?), Jur tribe (?) according to linguistic links).

Ukwa was one day sitting near the river when he saw two lovely maidens with long hair rise out of the river and play about in the shallows. He saw them many times after that, but they would have nothing to do with him and merely laughed at him. It should be mentioned that their lower extremities were like those of a crocodile.

One day Ukwa found them sitting on the banks, so he came up behind and seized them. Their screams brought their father, Ud Diljil, out of the river, to see what was the matter. Ud Diljil, whose right side was green in colour and in form like a crocodile, whilst his left side was that of a man, protested mildly, but allowed Ukwa to take away his daughters and wed them, merely giving vent to a series of incorrect prophecies regarding them.

Nik-kieya, the elder sister, gave birth to two sons and three daughters, and Ung-wad, the younger, to one son only, named Ju, or Bworo. The eldest son of Nik-kieya was named Nyakang (Nik-kang or Nyakam) and inherited the pleasing crocodilian attributes of his mother and grandfather. Meanwhile Ukwa married a third wife, whose eldest child, a son, was named Duwat.

On Ukwa's death there was a furious quarrel between Nyakang and Duwat as to who should succeed Ukwa. It ended by Nyakang, with his sisters Ad Dui, Ari Umker, and Bun Yung, his brother Umoi and his half-brother Ju, acquiring wings and flying away to the south of the Sobat. Here they found the Shilluk country inhabited by wicked Arabs, so they drove them out and founded a most successful kingdom. According to their genealogy this would have been about 1200 A.D., or later.

Nyakang had a creative power which he used greatly to the advantage of the kingdom. In order to people the vast territory more quickly, he proceeded to create a people from the animal life he found in the forests and rivers. From crocodiles and hippopotami, and from wild beasts and cattle, he created men and women. When these had brought forth many children, the parent stock was removed by death, so that the children might not know of their origin.

The new creation and their offspring form the Shulla race or common people, in distinction from the direct descendants of Nyakang's family. The latter continue to bear authority and fill the priestly function to this day. All outside the royal and priestly line are accounted Shullas.

Nik-kieya still exists. She never died and never will. The western part of the Sobat and part of the White Nile near there is her favourite abode. She often appears, usually in the form of a crocodile, but at times in different forms and always in the river or on its banks. No sacrifices are ever offered to her. When she wishes, she takes what is required from man and beasts: and when it is so, the people must not complain; indeed, it is an honour when Nik-kieya is pleased to take her sacrifice of man or beast from a family.

Nik-kieya becomes judge also in certain difficult cases, it is said, particularly in cases of illegitimate children. When the man accused denies fatherhood, the case is turned over to Nik-kieya. The disputants are taken to the river bank, and along with them a goat. They are then put into the river, and the one that Nik-kieya carries off is judged guilty, and he or she is left in the hands of Nik-kieya, to be punished. The beauty of this method is that a consciousness of guilt, added to a belief in and fear of Nik-kieya often causes confession, and thus the case is ended. It is not quite clear why the goat is taken to the river. It may be to give Nik-kieya a chance for a sacrifice without taking a human being, or it may be because a goat tied close to the river will attract crocodile from quite a distance. To Nik-kieya are ascribed many wonderful miracles, and it is feared also that in actual practice she becomes a cloak for sin.

Around this mythical being and her demi-god son are wrapped many superstitions, not the least of which is that sacrifices to and the worship of, the great deity Jo-uk, are carried out by the intermediary of Nyakang, the demi-god.



EX-MEK KUR WAD NEDOK--DEPOSED 1903.



SHILLUKS ON A VISIT.

Jo-uk is recognised as the father and source of all life, of evil as well as good. He is treated rather as a deity to be feared and propitiated, but he enters into the small relations of life all the same, and most incidents, such as death, sickness, going on a journey, etc., are referred to his action. The Shilluks believe that Jo-uk is everywhere, and that man when he dies goes to Jo-uk; but whether anything happens to him in consequence seems doubtful.

To Jo-uk sacrifices are made at least once a year, at the beginning of the rainy season, and much of good and evil are attributed to him. This sacrifice consists in the slaying of an animal by the priest of each village for the people of his village, assembled at the house of the "Nyakang." The animal is slain with a holy spear, and the flesh divided among the people, cooked and eaten. Then follows a dance, with much drinking of merissa to make their hearts merry. For this sacrifice and dance, which is apparently the sum of their worship, there are especial houses. But in each village there is a small temple, similar in structure to the larger one. In this, or more correctly, around this, the elders of the people assemble for the transaction of all serious business, and call their gods to witness in all covenants. No village is without this small temple, and it is the only building on which any ornamentation is attempted. It is called the house of Nyakang, not the house of Jo-uk.

In cases of illness sacrifices are made to Nyakang. The Shilluks bury their dead inside the confines of their villages close to the house where the deceased had lived, killing a bullock at the wake, the horns of which are set up to mark the place of interment.

After Nyakang there have been, including the present one, 26 kings. The following is the list* :—

History.

- | | |
|--------------------------|---------------------------|
| 1. Nyakang. | 15. Nyadok. |
| 2. Dag (Dok). | 16. Akwot. |
| 3. Odage. | 17. Ababdo. |
| 4. Kudit. | 18. Awin. |
| 5. Dokodo (Dakkode). | 19. Akoj. |
| 6. Boj (Boiwj). | 20. Nedok (Nyadok). |
| 7. Tugo (Tuka). | 21. Kwad Keir (Kwat Ki). |
| 8. Nya Dwai (Nya dwi). | 22. Ajang (Ajang). |
| 9. Nya Ababdo. | 23. Gwin Kun (Kwoe Kon). |
| 10. Muko (Mu Kao). | 24. Yor Adodit (Yur). |
| 11. Nya To (Nya Ta). | 25. Akol. |
| 12. Nyakong (Nik Kang). | 26. Kur Wad Nedok. |
| 13. Okun (Ukon). | 27. Fadiet Wad Kwad Keir. |
| 14. Nya Gwatse (Nkwaji). | |

Kur Wad Nedok was appointed king by the Dervishes as a reward, it is said, for betraying Mek Yor Adodit to them. During Kur's absence in Omdurman, Akol was appointed mek by the Shilluks. Ak Kwo Kwan, son of Akol, is a pretender to the throne, but has few adherents.

It is related that all kings from Dag to Nyadok were killed by the Shilluks. Kwad Keir, Ajang, and Gwin Kun fell by the hand of the "Turks." Yor fell in fight with the Dervishes. Kur abdicated. Akol is dead; he is said to have been shot by the Dervishes. The descendants of the kings are called "Gward," in contrast with the ordinary Shilluks, who are called "Ororo." The royal descendants form the upper class, while the Oroko are at the beck and call of the kings.

The idea of kingship is implanted wherever the Gward exist, and the latter are numerous. It is, therefore, not easy to exterminate the idea of royalty.

Royalty in this country is royalty, both by selection and inheritance at the same time. It is so by selection because the leading men of the country select the king from a variety of claimants, and by right of inheritance, inasmuch as only sons of kings are entitled to ascend the throne.

The right of accession to the throne is acknowledged as belonging primarily to the sons of the late king.

* From Father Banholzer's memo. The Rev. J. K. Giffen gives an almost identical list, and includes an extra king.



SHILLUK VILLAGE SCENE.

CHAPTER IX.

NORTH-WESTERN SUDAN.

COUNTRY WEST OF THE NILE, SOUTH OF LAT. 22° AND NORTH OF KORDOFAN.

This district readily lends itself to division for description into three sections, viz. :—

- 1.—Desert west of the Nile, north and west of Wadi El Gab, including Arbain road (for detailed report of which *vide* Appendix, Part III, Vol. II.).
- 2.—Wadi El Gab.
- 3.—Bayuda Desert.

SECTION I.—DESERT WEST OF NILE, NORTH AND WEST OF WADI EL GAB.

The country west of the Nile from Halfa to Kerma merits little description. Desert of the most arid description comes down close to the banks of the river, west of which all is uninhabited and waterless, with the exception of the few oases, for as far as is known upwards of 300 to 400 miles. The desert itself varies from hard, often stony sand or gravel-covered plains, to undulating moving sand dunes and rocky hills of lime, granite, or basalt. Remains of petrified forests are occasionally met. The amount of mineral wealth discovered in this inhospitable region is not yet definitely known.

Here and there a very limited amount of vegetation is met, at some spot where the water of one of the rare rain-storms that pass over this district has chanced to collect, but more often one may travel for miles and miles over country devoid of any vestige of animal or vegetable life.

The whole of this desert region, including the wells and oases, is uninhabited. It is, however, visited occasionally by roving bands of Hawawir and Kababish in search of natron or wild dates, as also by raiding parties of the Bedaiat, a tribe living to the north of Darfur, who only recently drove off camels grazing within 80 miles of Dongola.

The following is an extract from a report by Captain H. Hodgson, February, 1903, descriptive of the country west of the Wadi El Gab.

“Beyond the limits of the Wadi El Gab, on the western side, there seems to be a belt of country in which water is easily found, but is undrinkable. Of the two water pans I have tried, namely Murrat and Butta, the one is very bitter and the other has a distinct smell of sulphuretted hydrogen—Arabs use these waters medicinally as purgatives.

“I reached and ascended the plateau of Jebel Abiad at what I reckon, roughly, to be 100 miles west from the river at Khandak. In 1901 I found the northern extremity of this range to be 98 miles from the river at Dongola. It is, on the eastern side, a high steep bluff, exposing the white rock (gypsum) from which it gets its name. It extends continuously from where I stood, both north and south, as far as the horizon. Jebel Abiad.

“The surface of the plateau is shingle and sand; it slopes gently down on the western side.

“I reached the Natrun valley on the 31st January. It is not literally a valley, but an undulating plain stretching south and south-west as far as the horizon. From south-east to north-east it is bounded by a high range of steep hills of black rock; from north-east to north-west by high broken rocky ground with isolated conical hills; to the west, by low gravel hills. On the distant horizon, north-west, is a high range of hills. Close under the bluff on the eastern side of the plain are two thickets of selen bushes, growing luxuriantly and suffering in places from over supply of water. This is very plentiful and near the surface, the sand being brown and damp, but it is not the best water in the valley. The southern of these two thickets is called Melani. An isolated peak in the northern centre of the plain, called Jebel Kashaf, lies at a bearing of 315° mag. from Melani. The best water, called Bir Sultan, lies 3 miles from Melani at a bearing of 278° mag. and due south of Jebel Kashaf. On the ground called Bir Sultan (which includes an area of about $\frac{1}{4}$ square mile, covered with tussocks of Halfa grass, etc.), I found three or four pans of good water, the soil below the sand being white clay. There is a small clump of date seedlings near the biggest spring. Wadi
Natrun.

There is plenty of evidence of natron in the valley, but the place, where most of the digging is done and where the thickest seam of natron is reported to be, is 2,400 yards from Jebel Kashaf and to the west of it, at a bearing of 310° (mag.). The diggings are in what looks like a dry salt pan left by the sea, except that the sand is very red. The method of collecting it is as follows: About 2 to 4 inches depth of sand is cleared away until the natron, a substance resembling a yellowish rock salt, is reached; the top part is usually bad, being half sand. Then there is a seam $\frac{1}{2}$ to 2 inches thick, of good natron, and again below a little bad natron, and then below all sand again. Sometimes all the natron is spoilt by being mixed with sand. Near the natron diggings is a large thicket of selem bushes, and besides this and at Melani, there is a clump of date trees and selem north-east of Jebel Kashaf and another thicket of "littel" scrub, besides plenty of halfa, tamam, taklis, and halaf grass etc. A party of 400 or 500 camels could live some months in the valley on the grazing only. Good shelter can be obtained from the wind, and there are plenty of garids etc. to make tukls. Gazelle plentiful.

Arbain
road.

"The Arbain road lies along very high land, and anyone traversing the road during the winter months should, if possible, march with the wind, *i.e.*, from north to south. The cold was intense, and the shelter from north wind nil, as all hills are steep on the north side and slope gradually away to the south.

"At Sultan, Lagia, and Selima this is reversed, and the hills are steep on the south side. This change in formation accounts probably for the presence of water."

Game.

This desert region is the haunt of the Addax, the rarest of Sudan antelopes. Specimens have been killed near Tundubi.

Wells and Oases.

Sheb-Nakhla
district.*

NAKHLA.—Situating about 80 miles north-west of Halfa. Named after the single date palm overhanging the wells. Surrounding the hill on which this date palm stands is a narrow valley about 80 yards wide. Throughout this depression water can be obtained at a depth of $3\frac{1}{2}$ to 5 feet. The water is of better quality than that of any of the neighbouring wells and is abundant. There is practically no grazing or fuel here; the latter can be obtained, however, at a distance of 2 to 3 miles.

HASSAB EL GABU.—About 10 miles west (?) of Nakhla. This well is situated on the top of a circular sandhill 30 yards in diameter. Good water is found at a depth of 2 feet, as it may be almost anywhere between Nakhla and Sheb. Good grass for camels.

BIR SULEIMAT.—11 miles (?) from Nakhla. Good grazing. Water bitter, but plentiful.

BIR SEDERI.—28 miles from Nakhla. Water bitter. Little grazing. Dom palm covered sandhills 100 yards from well.

EL HAAD.—33 miles from Nakhla (direction uncertain). No well, but good grazing on "Haad" grass.

SHEB.—40 miles W.S.W. of Nakhla. Is the southernmost water in the Sheb district. Well 4 feet deep and same in diameter (October, 1902). Water plentiful, but brackish and aperient. Good grazing and plenty of firewood. This is a watering place on the Arbain road.

TERFAUI (I).—About 6 miles north of Sheb, situate in a small oasis in a broad wadi said to lead from the oasis of Selima to the Nile by way of Kurkur. This valley is bounded on the west by precipitous sandstone cliffs. There is a group of trees here 250 by 300 yards. Good grazing for camels. The water is drinkable. Immediately to the west of Terfaui is a pass over which the usual road to the northern oases of Beris, etc., passes. This is usually a watering place on the Arbain road.

ABU HUSSEIN.—About 35 miles north-west of Sheb. Consists of a clump of trees and bush-covered mounds about 30 feet high. There are three more places exactly similar to Abu Hussein, two being to the eastward and one to the west. They are all about 5 miles apart and lie in a general line from east to west. Water may be found at a depth of $1\frac{1}{2}$ feet at any of them, and here and there between them. Good water and plentiful. Grazing also good.

TERFAUI (II).—16 miles north-west of Abu Hussein or about 50 miles north-west of Sheb. It consists of small mounds of sand covered with long green grass. Water plentiful at depth of 4 to 5 feet, grazing good, consisting of tufts of long grass, over an area of about 1 mile by $\frac{3}{4}$ mile. There used to be three dom palms here, but these were burnt down by Captain Ross in 1894 on account of the snakes which infested them.

KASSABA.—The northernmost well in the Sheb district is at Naseib, 15 miles north of Kassaba. At Kassaba the water is not good, but many old wells point to its having been much used in former days. Situated in an open plain about 26 miles N.N.W. of Sheb. A watering place on the Arbain road.

SELIMA OASIS.—Selima lies on the Arbain road about 78 miles south of Sheb and 55 miles west of the river at Sagiet El Abd. Halfa is about 120 miles to the north-east. It is perhaps the most important oasis in the western

* This district is not actually in the Sudan, but owing to its proximity to Halfa, some description of the wells in it is given here.

desert of the Sudan, as not only must caravans using the Arbain route almost necessarily stop here for water, but its dates and salt are probably of considerable value from a commercial point of view.

Mr. James Currie, who visited this oasis in October, 1901, thus describes it :—

“A most beautiful place. It would be most difficult to find without a guide, as it is really only a large hole in the desert. The descent to it is very steep indeed. There are three wells, a good many date trees, and good grass. One sees the remains of an old Christian convent, moderately well preserved, but the point of interest attaching to it is that it has apparently been built out of the ruins of something much older, to judge from the inscribed stones one notices. There are abundant salt deposits near, and a huge petrified forest, which extends further than I had time or inclination to go.”

Captain H. Hodgson (February, 1903) writes with reference to this oasis :—



DONGOLAWI MERCHANT.

“Besides the old salt workings, which are capable of considerable development, there are some 2,000 fruit-bearing date trees. My estimate may not be very near, but I spent two hours with two other men counting in order to get this idea, and in this time counted 685 female trees, and covered only about one third of the ground. The trees are uncleaned with very thick undergrowth, and are being ruthlessly hacked in order to enable the Arabs (Hassanab from Kosha) to get at the fruit. Dates of the following species were collected : Kulma, Agwa, Barakawi, and Gawa. The first and second are both of considerable commercial value : the Agwa trees seem the most numerous.”

TUNDUBI.—For description of this oasis *vide* Route Report Dongola to Bir Sultan, Vol. 2. The addax is found near here.

LAGIA.—*Vide* Route Report Dongola to Lagia, Vol. 2.

BIR SULTAN.—*Vide* Route Report Dongola to Bir Sultan, Vol. 2.

TURA.—An oasis said to lie about 150 miles south-west of Lagia, which is approximately 160 miles north-west by

west from Dongola. Here there is said to be a sulphurous lake about $\frac{1}{2}$ mile long, known as Tura El Bedai. Water, if obtained from holes dug on the margin of the lake, is said to be tolerably sweet and drinkable. There are many wild date trees here, for the fruit of which the Kababish and Bedaiat have been long accustomed to fight.

SECTION 2.—WADI EL GAB (KAB).

*The Northern Branch of the Wadi El Gab.**(By Major A. E. Turner, R.A., December, 1884.)*

The northern branch of the Wadi El Gab extends from Hannek to the village of Sawāni, 26 miles due west of El Ordi, or Kasr Dongola.

It is a flat tract mostly sandy, but there are many stony plains and occasional rocky hills, as well as plains where salt and lime crop to the surface. The natives collect the salt, and carry it to the villages on the Nile, where they barter it for grain, etc. There are many wells, and round these wells the straw-built huts are congregated, forming villages; there are numerous, and some very fine, palms, both dom and date, near the wells, and these in some places mark the site of deserted villages, where the wells have dried up.

The people at the present time (1884) have very few camels,* except mileh and young. They have sold a great many, and a good many are employed by contract between Dongola and Sarras on the west bank.

The villages are all built near the wells, and in deep reddish sand.

There is no ground for cultivation whatever, and hardly any grass (halfa or other); the trees are palms, acacias (the latter very fine and old).

Lagia.

Leaving Hafir and the Nile, the road leads S.S.W., crossing a plain covered with stones and shingle, with scanty mimosa shrubs; at 9 miles a low ridge is mounted, and the Wadi El Gab is visible with the village of Lagia and its palms 5 miles distant. At $13\frac{1}{2}$ miles, the ruins of three old buildings are met, one on the west, two on the south side of the road; one of the latter is a ruined convent or monastery, and its cells are visible. Many of the palms are burnt, having been destroyed by their owners who went to join the Mahdia. 4 miles S.S.W. is the village of Abu Naama. Seven miles south-west the village of El Mungur, which has two good wells.

Abu Naama.
El Mungur.Abu Baguga.
Abu Halfa.

Two miles south-west of El Mungur is the well and village of Abu Baguga, and 1 mile south-west of it that of Abu Halfa.

Sarari
Duku
deserted.
Ain El Bir.
deserted.
Mount
El Kwais.

After going 2 miles S.S.W., the road goes W.S.W., and a $\frac{3}{4}$ mile further lies, on the east of the road, the village of Sarari, now deserted, and that of Dukur on the west, also deserted. At 3 miles further, the deserted village of Ain El Bir, a mile from the road on our left (east), and just beyond it a solitary rocky hill called El Kwais.

Goz El
Fugar.
Bayuda.

At 9 miles the road mounts a ridge, and then descends into a sort of circular basin about 1 mile in diameter, surrounded by low hills. On leaving this at 10 miles, I saw the village of Goz El Fugar 1 mile to the left (east), and $\frac{3}{4}$ mile further I arrived at the village of Bayuda, on a sandy hill, with numerous palms; a considerable village.

El Gumra.
Zalia.El Kur-
motai.

After leaving Bayuda, the road goes south by east; at 1 mile on the right (west) lies the village of El Gumra, and 2 miles further, also on the west side, that of Zalia; at $7\frac{1}{2}$ miles a large expanse, covered with palms and acacias, with two good wells, is reached, called El Kurmotai. From this the road goes south-east for $1\frac{1}{2}$ miles to the village of Sawāni, the sheikh's own village and chief village of the Wadi Gab. Some of the huts are built of mud, but mostly of straw.

Sawāni.

Sawāni is a very picturesque village with a large open space on the south side, bounded on three sides by trees, and on the fourth side lies the village.

Um Hellal
(1).
Um Hellal
(2).

The road to Dongola is due east; after 2 miles a low range of hills is crossed, at the east foot of which lies the small village of Um Hellal, at $\frac{1}{2}$ mile further, a flat plain with much lime; at $4\frac{1}{2}$ miles (2 miles further), another village, called also Um Hellal, on the north side, and 1 mile from the road is passed; a mile further, rocky ground is reached, which gradually rises, and 1 mile further the Wadi Gab ceases, and the road goes over bare, rocky, and broken ground to Dongola. The latter is 26 miles from Sawāni.

Wells.

The wells are very good, the water is, as a rule, near the surface, and the wells are lined with stone; the depth of water did not appear to be more than a few feet.

The sheikh told me that there is no settlement of his branch of the Kababish tribe south of Khandak, and that all is desert between that end of his valley (wadi) near Khandak to within a day's march of Debba.

* This remark applies equally now (1903).

Names of places.	Distance in miles.	Description.
	Intermediate.	
Hafir ... ..	...	On the Nile. The road is in a S.S.W. direction, and is over a plain mostly covered with shingle and a few mimosa shrubs. At 9 miles, a ridge is mounted, whence the Wadi El Gab is visible. At 12 miles, the valley is reached; and at 14, the village of Lagia.
Lagia	14	The road is S.E. for 7 miles to El Mungur.
El Mungur	7	The road goes S.S.W. for 2 miles; the rest of the way W.S.W.
Bayuda	10 $\frac{3}{4}$	The road goes 7 $\frac{1}{2}$ miles S. by E., then S.E.
Sawāni	9	The road due E into Dongola.
Dongola	26	
Total	66 $\frac{3}{4}$	

WADI EL GAB.

(By Col. Colvile, Grenadier Guards, October, 1884.)

The Wadi El Gab is a sandy khor about 63 miles in length, running through the trough of a broader and rocky valley. Its general direction is north-west and south-west. It is inhabited by the Omatto section of the Kababish tribe, of which Sheikh Fadl Mula Wad Rekha is the chief. Its most southerly well is Marghum, 30 miles to the west of Khandak, and its most northerly is said to be 20 miles west of Hafir. Its only productions are wood and dates, both of which are plentiful. Its inhabitants do not appear to own any great number of camels; those to be seen at the various settlements being mostly milch nagas and their foals. Goats, which feed on the mimosa, are plentiful.

On leaving the Nile at Bakri the road at first crosses a flat sandy desert, destitute of vegetation; but after 7 miles a district is reached, thickly studded with low mimosa bushes. In the district are several Arab encampments, some of them as much as 4 hours' journey from the nearest water. Fifteen miles from Bakri the country becomes more undulating, and the surface covered with firm gravel; and 10 miles further on, a range of hills running north and south is reached. Passing through a break in this range, the road follows for 3 miles a valley running nearly at right angles to the main one, and then strikes the track running down the Gab to the Abu Gussi-Kordofan road. Passing down a sandy valley, dotted with sand dunes, and sparsely studded with low mimosa scrub, the most southerly well, Bir Marghum, is reached, 7 miles north of the point where the valley first entered. The well is stone-lined, and the water is 20 feet below the surface and 4 feet deep. It is said that the well never runs dry; the water is good. For the next 6 miles the country continues to be scantily covered with low mimosa scrub; Bir El Ain is then reached, and the valley becomes more thickly and heavily wooded, and continues to be studded with fine acacia timber to El Sawani. Between El Ain and El Sawani are the following six wells:—

Abu Haweid.	El Hudden.
El Bab.	Bayuda.
El Harma.	El Huffera.

They are all lined with stone, and about 4 feet of good water is found in each of them at from 3 to 4 feet below the surface. Nine miles beyond El Huffera, El Sawani, the chief settlement of this section of the Kababish, is reached. It contains many native huts and four mud dwellings. This well, like all the others (with the exception of El Marghum) is marked by a clump of palms.

The road to El Ordi, after skirting the valley for a few miles in a north-east direction, turns to the east and crosses 10 miles of broken rocky ground and low ridges. A tract of undulating ground is then reached, which extends to El Ordi. With the exception of small patches of acacia in some of the valleys, this district is wholly devoid of vegetation; it is uninhabited.

WADI EL GAB.

(By Colonel A. Hunter, C.B., D.S.O., November, 1896.)

The Gab does not realise expectation, nor fulfil the descriptions given of it. The hand and sand of destruction is everywhere visible. The wind, blowing prevalently north or north-west, rolls the sand along, the sand catches in the

amarisk bushes, in the roots and undergrowth of the palms, date and dom, till it piles over the bushes, and reaches towards the top of the palms or smothers them. The whole place has the appearance of a forest after a heavy storm: trees lying prone in all directions, but no effort is made at replanting or replacing. A few seedlings struggle into existence now and then. The sand moves on, leaving the palms crippled or dead. I have heard so much of the vegetation and grazing, and date trees, verdure, luxuriance, etc., of the Wadi El Gab—it never existed. Ruthless, and judging by events, not altogether unavoidable, neglect, has diminished the little there ever was. We know it carried a large head of camels, goats, and sheep, at least so it was supposed; but, barring goats and a few donkeys, the herds of the Kababish had to roam "for forty days in the wilderness" towards Darfur and Kordofan, and northwards to abreast Mahass and Sukkot, for their food. Water is found at from 12 to 20 feet below the surface; the Gab averages about 5 miles in breadth, patches of grass and thorn bush crop up at intervals, separated by rolling hills of rock and sand. Round the wells there are the miserable straw huts and mud houses of the tribesmen, with here and there groves of palms; no game to speak of. Gazelle exist in small numbers, and are very afraid of mankind. This is accounted for by the fact that the Arabs trap them, and hunt them with dogs, a breed of yellow greyhound. The trap is a round hoop, with thin strips of wood tied to the circumference, and the points of the strips meet at the centre, laid so that the strips make a slight cone, like the top of a basket. The gazelle browse on the thorn bushes; close to the bush the Arab puts the trap in a little hollow in the sand, cone downwards, places on the rim of the trap a running noose, to the other end of which is fastened a billet of wood. The whole is covered over with sand. The gazelle comes to feed off the sprouts of the bush; puts his foot into the noose; his foot slides through the apex of the spines of split wood; he kicks to free his foot, and so the noose tightens on his leg, and there he is, with a rope tied to his leg; he cannot kick off the rope, for the billet of wood drags the knot tight, and the trap prevents it slipping down, and the Arab then appears with his dogs, and chases the animal down.

Twelve miles west of Shensi is Wadi El Butta, very much like the Gab in appearance. Addax and wild sheep are said occasionally to come here in summer. Water is near the surface, and is got by the animals by scraping. A curious feature is the occurrence over the whole face of the desert of patches of succulent plants and grasses which serve as food for camels and for goats.

Sawani to Bayuda, 9 miles. El Bab to Haweiya, 9½ miles.

At Haweiya, or Haweid, a number of wells, also at El Bab. They are part and parcel of one place.

Rode to El Marghum, the post occupied by the old Sheb post. I asked about these wells in the Gab, and got always the same answer. Those existing were dug by their ancestors, so long ago no one remembers, and ever since no one has been to the trouble to dig or explore for anything fresh. Well here deep, 18 or 20 feet, and stone faced.

THE WADI EL GAB.

(*Sir W. Garstin, G.C.M.G., April, 1897.*)

No account of the Dongola province would be complete without some mention of this great depression which extends through the Western Desert from Hafir to Debba, a distance of some 125 miles. It is chiefly inhabited by the Kababish tribe of Arabs, who use it for grazing their flocks; and it contains numerous wells.

It has been thought that this depression might possibly be utilised as a storage reservoir or as a means for escaping the surplus water in an excessive flood. It is very doubtful whether it could thus be made use of. The wadi appears really to come to an end a few miles north of Hafir, and the nearest point to the river to be at a distance of some 10 miles.

The lowest portions of the Wadi El Gab must be considerably lower than the level of the river in flood, but by how much it is impossible, without levels, to say.

On leaving the Nile, in the direction of this valley, the country rises rapidly for some 4 miles. It then begins to fall away from the river, in a succession of terraces, until a total of about 10 miles have been traversed. The real edge of the wadi then commences. Its width at the northern end appears to be about 5 miles. The western edge is filled up with drift sand, which is gradually covering the palm trees. A well, measured at the Oasis of Lagia, showed the water level to be some 9 feet below the ground surface. The water was sweet and of good quality.

It would be useful to have the whole of this depression carefully levelled and surveyed. The area covered by it is very large, and supposing it were possible to fill it with water, the loss from evaporation would certainly be very great.

SECTION 3.—“BAYUDA DESERT.”

The tract of country north of Kordofan, *i.e.*, north of N. lat. 16° (approximately), bounded on the north and east by the Nile and on the west by the Wadi Melh has been called the Bayuda Desert, though this name is not applied to it by the Arabs. General.

It is inhabited by nomad Arabs, *viz.*, on the east by the Kababish, chiefly the Omatto section under Sheikh Fadl Mula Wad Rekha; in the centre by the Hawawir, of which the Sauarab is the most important sub-tribe, under Sheikh Hassan Khalifa; and on the east by the Hassania, whose headquarters are at Jebel Gilif and Jakdul. In the extreme north, in the angle formed by the bend of the Nile, are the Monasir, who are, however, a sedentary tribe. These above-mentioned nomads wander a great deal according to the grazing, on the existence or absence of which, in many cases, depends the fact of wells being open or not. Inhabitants.



BAYUDA DESERT ARABS.

The Arabs cultivate their dura in certain well-known wadis, mostly in the more southern districts, according to the rainfall, which is, as a rule, not heavy, and very local, and varies considerably from year to year. Cultivation.

The W. El Melh is a broad shallow depression, frequently a mile or more in width, having its origin near Um Badr. It is inhabited here and there by the Kababish. It reaches the Nile at Debba, though it has long since ceased, if ever, to discharge water into that river. For further description of this wadi, *vide* Route Report Dongola to El Fasher, Part III. This route is now seldom, if ever, used. *Vide* also report on El Ein, p. 210. Wadi Melh.

The next wadi of importance in this district is the Wadi Mogaddam which has its origin near Bagbag, about 60 miles south-west of Omdurman, and joins the Nile near Korti after a course of about 200 miles in length. For description of this wadi and the wells, etc., in it, *vide* Route Report Gabra to Korti, Part III. Wadi Mogaddam.

The wells of Gabra in the Wadi Mogaddam, nearly 60 miles north-west of Omdurman, are an important Arab centre, there being many wells and a good deal of cultivation in the neighbourhood. The Arabs are principally Kababish, but Geriat and Hassania also come here. Gabra is under the Governor of Khartoum, but the boundaries of Dongola, Berber, and Kordofan Provinces are all within a few miles of it. Gabra.

Communi-
cations.

Communications throughout this district are bad owing to scarcity of water. The principal trade routes are :—

- (1) Debba-Fasher *viâ* the Wadi Melh (little used).
- (2) Debba-El Obeid *viâ* Amri, Hobagi, and Haraza (used a little during rainy season).
- (3) Debba-El Obeid *viâ* Amri, Elai, and Habisa (longer than (2) but more water).
- (4) Debba to Omdurman* *viâ* Inderab, Gumr and Gabra (a good deal used).
- (5) Debba to Omdurman *viâ* Elai and Gabra (little used).
- (6) Ambugol and Merowe to Shendi (Metemma) (little used).
- (7) Merowe to Berber *viâ* Sani (a good deal used).
- (8) Merowe to Omdurman* *viâ* Hamboti and Wadi Bishara.
- (9) Gabra to Korti (little used).

All the above routes except No. 8 are described in the route reports in Vol. II, and from them some idea of the country may be obtained. The traffic along No. (7) will presumably increase considerably on the completion of the Nile-Red Sea Railway.

(From the Reports of the Surveying Parties employed by Mr. G. Kilgour and Mr. Fowler, C.E., 1871-72, and other Sources.)

Northern
Bayuda
Desert.

The track across the Bayuda Desert, from Ambugol to Shendi, is comparatively easy going, and is fairly well supplied with water ; but not being a main trade route, it is little used by caravans.

There are no difficult defiles or passes.

The tract of country traversed consists of extensive plains divided by ranges of low hills. It is very unlike the sterile and rocky deserts further north, and in many places shows abundant signs of vegetation. Wadis, pastures of long coarse grass, and many clusters of trees are met with, whilst, during the rainy season, the ground is susceptible of profitable cultivation in some parts.

This route is just within the limits of the tropical rains. The wet season lasts from May to August, but rain never falls for more than 15 days in any year. Sometimes there is no rain for two consecutive years.

There are no streams, the water sinking into the sand and disappearing within 24 hours after rain has fallen.

During exceptionally hot days small whirlwinds pass in great numbers, and carry across the desert sand and fine débris in columns upwards of 150 feet in height. They have a formidable appearance, but are really almost harmless. A very large one might upset a tent, but this performance represents their maximum effect.

The Bayuda Desert is inhabited merely by wandering Arab tribes, of whom the principal are the Hawawir, Hassania, the Saunarab, the Fadnia, and the Aonia.

They subsist almost entirely by keeping flocks of sheep and goats, and by breeding camels, wandering from spot to spot to the best herbage, at such distance from the wells as enables them to water their animals. They also trap the gazelle—so plentiful in this desert ; and after the rains a certain amount of ground is usually cultivated by them, and small crops are obtained.

About 4 miles above Ambugol the wadi (valley or stream course) Abu Gir debouches into the Nile ; this wadi takes its rise in the Jebel Gilif about 70 miles from the Nile ; water is obtainable from shallow wells along its entire course in its bed ; like most of the lower portions of the Bayuda Desert, it is thickly covered with vegetation.

Vegetation.

This consists principally of low "samr" bushes (spreading thorny acacia), occasional "sunt" trees (*acacia arabica*, 20 to 25 feet high), the milk plant (*asclepia gigantea*), the "marakh" (a green shrub), the "tundub" (a bush, some 15 feet high), and "heglig" trees (20 to 25 feet high, and often with a diameter of trunk at 5 feet from the ground of 12 to 15 inches), the "mokert" (*sattadora persica*), and even occasionally the "dom" palm (*hypæne thebaïca*), of which the "dom" palm, the "usher," and "marakh" are indicative of water close to the surface.

Firewood.

Best suited for firewood are the "sunt," the "samr," the "tundub," and the "heglig," the wood of the latter, I may mention, being used as the base on which the natives twirl a dry piece of "samr" root with the object of producing fire.

Food for
camels.

Camels devour eagerly the younger branches of the "samr," the succulent leaves of the marakh camel thorn and el gau (camel grass), both of the last-mentioned being plentiful in the Bayuda ; indeed, this is a favourite district for breeding and rearing hugins (the lighter and faster class of camels).

Sheep.

Sheep, of which large flocks are owned by the Hassania, Aonia, and other wandering Bedawi tribes of the Bayuda, find, during the dry season even, ample food in the grasses of the plains near Jebel Gilif ; whilst the fresher shoots of the marakh and tundub, with the juicy leaves of the usher, provide sustenance for the goats.

Route from
Ambugol.

The readiest route from Ambugol is to strike for the desert close to the town, whence an easy slope, some 2 miles in length, rises to the desert plateau, here some 50 feet above the Nile bank. A shingly level plain is then traversed

* Cost of camel transport by this route varies from 55 P.T. to 75 P.T. per kantar.

for about 3 miles, when the Wadi Abu Gir is struck, leading right up to Jebel Gilif, with an ascent of about 10 feet per mile.

The route now skirts the hill Jebel Abu Shenkawi, near to the salt diggings, and passing another clump of hills, Debba El Kebir, joins another camel route from the Nile at a point some 300 miles from Ambugol, where the Wadi Mofokakart debouches into the Wadi Abu Gir.

This other camel track, after leaving Ambugol, follows the Nile to near Korti, a distance of some 4 miles, then, turning sharply to the right, passes by the Wadi Um Marra, and crossing the ridge of Nasaib El Ruchan, at a point some 300 feet above Ambugol, descends over rather broken ground to the Wadi Abu Gir, and from this point there is but one route. At about 37 miles from Ambugol the first wells are met; these are merely holes scooped in the sand, deepened as the subterranean waters fall, until either the sides fall in, or the whole of the excavations are obliterated by the rush of water down the wadi during the rainy season. First wells.

The water is drawn from these, and all similar wells in the Bayuda, by means of a rude skin bag; it is then poured into earth cisterns, on the surface, at which the camels, sheep etc., drink. It is so pure that a small quantity of salt, fairly plentiful in this desert, is mixed with it.

The wadi at this point, about 38 miles from Ambugol, which has hitherto been flat and sandy, with gently sloping sides, becomes much broken. Small metamorphic ridges, hills, and lava-like mounds close in, and petrified wood is strewn in all directions, showing that the belt of metamorphic rock that intervenes between the lower Nubian sandstone and the extensive granite rocks is being traversed.

About 55 miles from Ambugol are the wells of El Haweyyat, of similar character to those described above; the plain of El Reehewa is left on the right, and quitting the Wadi Abu Gir, which turns abruptly to the left, the route crosses a curious plain, about 3 to 4 miles wide, called El Mesalima. This plain is surrounded by low hills, and without vegetation; it is intersected by veins of mountain limestone, much resembling marble, and I here found fossil remains of the Saurian type. El Haweyyat wells.
El Mesalima.

Leaving El Mesalima, the route now crosses the plain at the southern foot of the Jebel Gilif, passing across water-courses which, in the rainy season, carry off the drainage from the mountains. These streams issue from wild gorges, and are said to drain extensive plains, 20 or 30 miles distant; a statement corroborated by the fact that they bring with them much brushwood and small timber.

After issuing from the gorges these streams wander at will, cutting constant new channels over an irregular talus of boulders and debris they bring with them; at the foot of this talus, they collect and run down defined sandy channels from 1 to 3 miles long, whose permanent character is proved by their tree-covered banks; these large channels then break up into a number of smaller diverging channels, which lose themselves in a grass-covered plain to the south, fairly covered with trees and brushwood, and about 8 miles across; this plain is said to be covered with water during the rains to a depth of 3 or 4 feet.

Water may be procured in any of these sandy channels by digging holes as described above; and at Abu Halfa, about 90 miles from Ambugol, are large wells of this description, at which large numbers of camels and flocks are daily watered. Abu Halfa wells.

After passing numerous pools of water still standing in basins worn out of the granite bed, the gorge, at a distance of some 7 or 8 miles from the entrance, widened out into a valley about $\frac{1}{2}$ mile across: here there was a small lake, the edges fringed with bulrushes and dom palms, whilst the native huts, flocks, and even birds and conies showed the permanent character of the lake. I heard that many similar lakes exist in the recess of the Jebel Gilif, but the Arabs are extremely reticent on this point.

At about 79 miles from Ambugol the Jebel Gilif range, with its uniform precipitous face, breaks up into outlying spurs with intermediate plains. In one of these spurs, about 2 miles to the north of the route and 100 miles from Ambugol, are situate the wells of Jakdul; these consist of water-worn basins in the bottom of a granite gorge of similar character to those mentioned above. The largest of the pools is some 60 yards long and 10 yards broad, and it is stated never to have run dry. Jebel Gilif range.
Jakdul wells.

The water is sweet, but the lower pools are much contaminated by the flocks constantly using them, and the sight of thousands of beetles issuing from the water at dusk is not inviting.

The upper pools, however, are much cleaner, and with care an ample supply of excellent water might be ensured. No doubt there are many other reservoirs up this gorge as at Abu Halfa.

To the eastward of the wells of Jakdul, and about 8 miles from the camel track, are the wells of El Faar, consisting of holes dug in a sandy water-channel similar to those of the Wadi Abu Gir. El Faar wells.

With Jebel Gilif the granite rocks are left, and the route traverses the upper Nubian sandstone, simple and metamorphic, to the river at Shendi, or rather Metemma.

Between the 115th and 125th mile the route crosses a belt of drift-sand hills travelling from east to west, these are of the usual type, *i.e.*, a crescent presenting its convex side and gentle slope to the wind; up this slope the sand 115th to 125th mile.

is driven to the apex, whence, falling over and remaining at its natural angle of repose on the concave side, the hill gradually but surely advances. the highest of the sand hills in this locality are about 13 feet high, their rate of progress depending entirely on the strength of the wind; to a camel they are no obstacle as it winds amongst them at will.

Abu Klea or Tleh wells.

At 150 miles from Ambugol are the wells of Abu Klea, or strictly speaking Abu Tleh (Tleh equals a particular kind of grass), artificial pits of similar character to those already described; the water is good and rarely fails; they require of course frequent cleaning out.

Shebakat wells.

At Shebakat, near the 168th mile, is a large well about 12 feet in diameter, sunk to a depth of 50 feet through the sandstone to a bed of water-bearing gravel; the water is brackish but the supply perennial.

Metemma.

At 175 miles from Ambugol, Metemma is reached; the town is about 1 mile from the Nile, but the plain between is occasionally flooded. The water supply is from wells kept up by percolation from the river, and is therefore excellent.

Hence to Khartoum, as stated above, the river is navigable for nearly the entire year, *vide* Chap. X.

Rainy season.

The rainy season in the Bayuda Desert is uncertain, as this is the extreme northern range of the tropical monsoon; there may be showers in May, but the true rains fall in June, July, or August. Some years may pass without any at all, and then a perfect deluge floods the country and refills the pools and wells.

Water

The conformation of the Jebel Gilif is such, that notwithstanding the large amount of water running off during the rains, a considerable quantity is stored at high levels, gradually finding its way into the sand-filled wadis, through permeable granite angites and diorites, of which Jebel Gilif is composed.

Sinking wells.

These wadis are crossed at intervals by spurs of trap rock, that serve the double purpose of keeping up the level of the wadi, which would otherwise rapidly degrade, and of affording, so to speak, "artesian" vents, up which the water, confined between the beds of the "Nubian" sandstone below, finds its way into the loose sand above. In sinking wells, spots should be selected where the vegetation in the wadis is of a brighter hue, and where heglig and the dom palm exist. In December, 1871, water was found in many such places, never more than 15 feet below the surface. The trap dyke in the vicinity will provide any quantity of fairly bedded stone with which to line the sandy sides of the well; the way I should suggest, would be, in the first place, to dig through the sand until water be reached, and then to excavate the ground in a circle of say, 24 feet diameter, lining it with a dry stone wall 3 feet in thickness, in this should be built, at intervals, pieces of hard wood, of which there is a large quantity, in order to form a rude ladder; as soon as the water is reached, a Norton's tube pump should be driven some 6 feet or more; this will prevent the accumulation of insect life, to be found in any open pools in the vicinity, and prevent other pollution; then, when this runs dry, the excavation should be again carried down to the lowering water level, and a well of internal diameter of 14 feet be built with a dry stone wall of say, 2 feet thick (the word in India for this form of well is "butcha"), the Norton tube driven down, and the process repeated as the waters lower. Were it possible to procure lime readily, the well might be sunk from the top, as is so habitually done in India, but the only limestone found in the Bayuda is at the plain of El Mesalina, as mentioned above.

The stone near these wells, and of which as described above, the supply will be practically unlimited, may be used in constructing defensive works, whilst there will be in their neighbourhood large quantities of fuel, and a considerable amount of bush that will serve as fodder for the camels.

A considerable quantity of sheep, milk, etc., may be procured from the neighbouring tribes.

Jebel Gilif.

The Jebel Gilif presents a certain source of danger (during the expedition, 1884): this consists of, in places, an almost precipitous face of some hundreds of feet in height, at the foot is an irregular talus formed by the degradation of the face, and by the stones and boulders brought down the "khors" (ravines) with which it is intersected. These "khors" are, in many places, near their debouchure from the mountains, very narrow (in places only one camel can pass at a time), with steeply precipitous sides, the bottom being of granite rock, polished by the materials carried down in the torrents of the rainy season, and in many places half blocked up with boulders and *débris*. As these "khors" rise to the level of the range they widen out into valleys, well supplied with wood, water, forage, etc., where large numbers of men could be kept concealed for a considerable period.

Report on El Ein.

Situation.

El Ein is situated about 130 miles from Debba up the Wadi El Melh. The general trend up the wadi is S.S.W. At El Ein on the western bank, for some 60 miles northwards and a short distance southwards, is a precipitous escarpment of rugged outline, but extremely uniform in height, known as Jebel Makakush. El Ein is a gorge in this, the northern promontory of which is surmounted by a rock of curious shape and is called El Serg.

There are two places where water is obtainable along the route from Debba to El Ein, one called Mahtul about 30 miles from Debba has two wells, and the other is Soteir another 30 miles further on. The latter is the better

water, but the quantity is small. On the arrival of the writer the well had been emptied by watering a troop of camels, and his men stated there was not enough water to fill waterskins for from two to three hours. At El Ein there is good and abundant water, while grazing may be found almost anywhere along the Wadi El Melh, but from about 30 miles south of Soteir it lies only along the western side, and is much less abundant than further north.

The formation at El Ein is a series of undisturbed sedimentary beds lying horizontally, most of which are sandstones or grits. This overlies unconformably a much older series of gneisses and schists which are exposed in the lower parts of the Wadi El Melh along the foot of the Makakush escarpment a few miles north of El Ein. Geology.

The sandstone series is continuous all the way to Debba, and extends over very large tracts of the Sudan.

There are no indications of any mineral deposits of value at El Ein in any of the beds exposed. Mineral deposits.

At several points, especially along the sides and just above the stream-bed, there are natural caves in the sandstone. For some little distance a very soft underlying bed has been weathered away undermining a harder upper one, the unsupported portions of which have broken off and fallen, or cracked and bent over, leaving open gashes. The general appearance of all this very much resembles that of an ancient shaft nearly filled up with *débris*, though a careful examination leaves no doubt that the phenomena are natural. Old work-ings.

On either side of the gorge about opposite the well is a cluster of ancient houses, while on a hill some way up the gorge and on the south side are some five more. Ancient buildings.

The houses are all of similar design approximately round, and are well built, without mortar, of unhewn stone laid in courses; the walls are about 2 feet thick, and many of the stones are of great size. The doorways of most of them face down the valley, but a few are on the opposite side. Many have additional rooms built forming segments of circles.

These buildings are more substantial, and differ in other respects from those usually seen round ancient mines in the Sudan. The only implements noted were two crushing stones; these, however, have not been used for crushing quartz (the matrix in which gold usually lies), being of ordinary millstone and not hard enough for that purpose. They were in all probability only the usual stones for crushing grain.

Across the entrance to the gorge is a wall probably originally 6 to 8 feet high, but now in ruins. It is built of unhewn stones, fairly well coursed, without mortar. The sides are vertical. This runs across the flat space at the entrance to the gorge and a little way up the northern slope. The stream bed lies in a creek some 15 feet below the level of the ground on which the wall stands, and there is no evidence of this waterway ever having been blocked.

In view of this as well as of the general construction of the wall, it is impossible that the structure was a dam, but I should imagine it was probably built for defence, and the gorge was used as a place of refuge against marauding bands by a people whose flocks usually grazed in the valley below.

CHAPTER X.

COMMUNICATIONS.

Communications in the Sudan are carried on by :—

A.—Railway.
B.—River.
C.—Roads.

D.—Riding and Transport animals.
E.—Post and telegraph.

There is no wheeled transport, except a few carts in the larger towns drawn by camels, mules, or oxen, and an experimental system of wheeled transport, rough carts drawn by oxen, in the Bahr El Ghazal.

Motor transport is in an experimental stage, and has only proved a partial success up till now, chiefly owing to the generally sandy nature of the ground and the present lack of roads.

There is a light railway at Khartoum which it is intended to run in conjunction with a tramway at Omdurman.

[For practical details and hints regarding Communications in the Sudan, see "Notes for Travellers and Sportsmen in the Sudan"* (price PT.5), "Sudan Almanac"* (price PT.5), and "Notes on Outfit for the Sudan" (price PT.2), all obtainable from the chief booksellers in Cairo or the Agent-General, Sudan Government, War Office, Cairo.

These are recommended as being indispensable for intending travellers.]

SECTION I.—RAILWAYS.

To Said Pasha (1860) is due the first idea of connecting the Sudan by railway with Lower Egypt. Mougel Bey Historical. reported on the subject, but, owing to the expense involved, the project was abandoned.

The first attempt at actually laying a railway in the Sudan dates from the time of the Khedive Ismail Pasha.

After a preliminary study in 1865–66, by Messrs. Walker and Bray, the Khedive sent up, in 1871, Mr. J. Fowler, C.E., to settle on the best routes for putting the Sudan into railway communication with civilisation. After some time spent in preliminary surveys, Mr. Fowler decided on a line which, starting from Halfa, would run up the eastern Nile bank, cross the river about Amara, and roughly follow the left bank to Ambugol. From here it would strike across the Bayuda desert, *via* Jakdul, to Metemma, cross the river again here, and continue along the right bank to Khartoum North.

From Debba a line was to be laid direct to El Fasher, capital of Darfur.

In the Eastern Sudan, meanwhile, a line was to be laid from Suakin, *via* Sinkat, to cross the Atbara and strike the Nile opposite to Khartoum.

These routes were accurately surveyed, and the railway from Halfa was actually begun and carried along the right bank to about Sarras. It was then abandoned, partly for financial reasons and partly at the desire of General Gordon, who considered that the country was not yet ripe for works involving such a considerable outlay.

During the 1884–85 expedition the railway was continued for some 40 miles, but in consequence of the evacuation of the Sudan it was dropped, and the portion beyond Sarras was destroyed by the Dervishes.

In 1896, when operations became imminent, the Sirdar began laying a line from Korosko southwards, but this was soon abandoned, and the original railway was continued in April, 1896, in the direction of Dongola. This line was completed after considerable difficulties, as far as its present terminus, Kerma, on 4th April, 1897.

The main line, striking from Halfa across the desert to Abu Hamed, was commenced on 1st January, 1897, and, after a stoppage of 22 days for want of material, reached Abu Hamed, 230 miles, on 31st October, 1897. It was laid at the great rate of about a mile a day, the maximum speed for one day being 5,200 yards. The record for 1 month was 48 miles; this was during October, 1897.

* Brought yearly up to date.

It eventually reached Khartoum North (Halfaya) on the last day of 1899.

The Suakin-Berber railway was boldly taken in hand during the Suakin expedition in the spring of 1885, but only a few miles were laid, and it was then abandoned.

The route for the future Nile-Red Sea railway has now been decided on and surveyed (1902-03), and the laying has been commenced from both ends.

The present lines from Halfa to Khartoum North and Dongola (Kerma) were laid primarily to supply an army in the field; the route, method of laying, and materials, were all chosen with this object in view.

Partly as a consequence of this, nearly 50 per cent. of the line is in the desert.

The main line is 575 miles, and the Kerma line is 203 miles long.

The gauge of the lines is 3 feet 6 inches, the same as the Cape railways. Single line throughout (except at the crossing-places).

Goods trains on the Khartoum line have to carry 7,000 gallons of water to enable them to cross the waterless desert sections; this considerably reduces the useful carrying power of the line.

The Kerma line runs through very rocky country, and has sharp curves and steep gradients. It is liable to wash-outs, and, as its cost is prohibitive in proportion to the traffic receipts, it will be abandoned in December, 1904, and the Dongola Province will be later connected to the main line by a branch line to Abu Hamed.

Khartoum line, steepest gradient 1 in 125; sharpest curve 960 feet radius.

Kerma line, steepest gradient, 1 in 50; sharpest curve 500 feet radius.

The Nile-Red Sea line will leave the main line about the mouth of the Atbara, will run up this river to about Khor Hudi (15 miles), and then branch off north-eastwards over the desert to Suakin, *via* Sinkat Pass. It is now in course of construction, and should be finished by the summer of 1906. Besides this and the Abu Hamed-Merowe branch, which is to be shortly commenced, other projected railway extension is from Omdurman to El Obeid, Suakin to Kassala, and Khartoum (N.) to opposite Wad Medani.

KHARTOUM LINE.

List of Stations.	Miles from Halfa.	Remarks.
Halfa*	1	See pp. 23 and 85 for description.
Halfa (Camp)†	0	" p. 23
Nos. 1 to 9... ..	...	In desert—these are only loops for crossing trains; wells at miles 77 (No. 4) and 126 (No. 6); telegraph station at latter, besides small shops and engine pit.
Abu Hamed†	230	Battlefield is 1½ miles south of Station. Bath rooms in Station for use of passengers.
Dagash	248	Country between here and Berber little inhabited or cultivated.
Abu Dis	267	
Shereik	291	
Abu Sillem	318	In desert.
Abidiat	343	
Berber North*	361	Starting point for desert roads to Suakin and Kassala.
Berber South	363	
Suakin Junction	384	Line from Suakin will join in here.
Atbara	385	Girder bridge over the Atbara, 1,050 feet long.
El Damert... ..	392	Many villages from here onwards; much cultivation and cattle. Thick scrub in parts; fertile soil. Chief town of Berber Province.
Zeidab	404	
Aliab	416	
Mutmir	429	
Kabushia	448	Pyramids of Merowe about 3 miles north of Kabushia, about 2½ miles east of railway.
Taragma	460	
Shendi†	471	Headquarters of Cavalry. District Headquarters of railway—Southern Section—and office of District traffic manager.
El Goz	483	
Wad Ban Naga	496	Nagaa temples 23 miles to the S.E. (<i>vide</i> Appendix D).
El Meiga	511	
Jebel Gerri	524	
Royan	538	
Wad Ramla	547	Zubeir Pasha's residence (Geili) close by.
Kulalab	560	
Khartoum North†	575	Terminus—on right bank of Blue Nile, opposite Khartoum.

* Telegraph office in town.

† " " station.

From about 1st April to 15th December there are two expresses each way weekly between Halfa and Khartoum North ; one of them has sleeping and dining cars attached with a restaurateur, but the other has only ordinary first, second, and third class carriages.

Passengers travelling by the latter must make their own arrangements for meals ; the first and second class carriages have small kitchens in them for the use of passengers' servants.

From about 15th December to 1st April there are two expresses weekly, each having sleeping and dining cars and restaurateur. There are also two local passenger trains each way weekly between Abidia and Khartoum North all the year round.

For fares and freights apply to Agent-General, Sudan Government, Cairo, or Traffic Manager, Halfa.

Time occupied on journey, Halfa to Khartoum, by passenger trains, 28 hours ; by goods trains, 47 hours.

KERMA LINE.*

List of Stations.	Miles from Halfa.	Remarks.
Halfa†	1	
Halfa (Camp)†	0	
Sarras	33	On river.
Ambugol	64	In desert ; wells.
Akasha	86	On river.
Kosha†	105	On river ; small shed and workshop ; railway strikes south across desert.
Kuror	137	In desert.
Dalgo	164	Railway rejoins river.
Kerma†	203	On river ; shed and workshops.

Kerma is about 30 miles north of Dongola. Transport between these two either by steamer, donkey, or camel, according to state of river.

Passenger accommodation on the Kerma line is of a rough description. Rates according to class of vehicles.

Gross receipts of Sudan Government Railways during 1902, £E.194,000, of which £E.103,000 on Government General account ; in 1903 the receipts were £E.137,000.

Goods trains on both branches run according to the requirements of the traffic, usually one train each way daily. For rates, etc., apply Traffic Manager, Halfa.

Stations are open for receipt of goods from 7.0 A.M. to 4.30 P.M., and for delivery of goods from 7.0 A.M. to 5.0 P.M.

There is a miniature railway in Khartoum used for passengers, etc., but beyond this no light railways have yet been constructed in the country. There seem to be openings for these towards Kassala, Gedaref, and El Obeid, but the time has not yet come. Light railways.

SECTION 2.—RIVER COMMUNICATIONS.

The Sudan freight, passenger, and postal communications are carried out by river from Shellal to Halfa, Kerma to Merowe on the Dongola reach, and to stations south of Khartoum by steamers and sailing boats.

SHELLAL—HALFA (226 MILES).

On the Shellal—Halfa reach for this purpose are five stern-wheel steamers, 2 screw tugs, 11 troop barges, 8 sailing barges (including one of 500 tons carrying capacity), and 44 sailing gayassas belonging to the Sudan Government ; there are also about 110 gayassas on hire for carriage of supplies, stores, etc.

A fast steamer service twice a week for through mails and passengers runs in connection with the Egyptian and Sudan railway services. This service is carried out by two steamers.

A slow service for local mails and passengers and freight also runs twice weekly.

The steamer passenger service carries private passengers, but no private freight is taken either by Government steamers or sailing boats. This is taken by private companies, Messrs. Thos. Cook, etc.

Arrangements are made to load both ordinary passengers and cargo at North End, Aswan, and for steamers and boats to pass through the dam locks. The fast mail steamers start from above (*i.e.*, south of) the dam.

* This line is to be abolished altogether in December, 1904.

† Telegraph office.

APPENDIX C.

ZOOLOGY OF THE SUDAN.

ZOOLOGY.

In preparing the following notes on the Zoology of the country, it has been assumed that the Mammals and Birds will present the most general interest. The variety and distribution of the large "game" animals has been briefly sketched, and, to make space for this, reference to the Invertebrate animals has been omitted.

MAMMALS.

Apes and Monkeys are well represented in the Sudan. The Chimpanzee (*Anthropopithecus troglodytes* *Primates. schweinfurthi*) occurs in the Bahr el Ghazal region, where also is found the beautiful black and white fur-bearing *Colobus guereza*; Baboons (*Papio hamadryas* and *P. anubis*), Grivet (*Cercopithecus sabæus*) and Patas Monkeys (*C. patas*) abound and are widely distributed. Lemurs (*Galago*) occur, but are seldom met with.

The Lion is found wherever the country is suited to its habits, and is in places plentiful. In 1880, one was seen half-way between Berber and Suakin, but at the present time it ranges little further north in the Sudan than Kassala. The Leopard, commoner than the Lion, but warier and less often seen, is even more widely distributed; the Cheetah or Hunting Leopard (*Cynelarus jubatus*) less so. Among smaller felines are the Serval, Caracal and Libyan Cat (*Felis serval*, *F. caracal* and *F. libyca*). *Carnivora.*

Hyænas, spotted and striped (*H. crocuta* and *H. striata*) are common; much rarer and more local is the Hyæna-like, but smaller, Aard Wolf (*Proteles cristatus*).

Jackals, Foxes and Fennecs are abundant; the Wild Dog (*Lycan pictus*) is scarcer.

Smaller carnivora are Civets, Genets, the Mongoose, the Ratel, and the pretty little black-and-white Zorillas, which in coloration remind one of the American Skunks.

The *Insectivora* are represented by Hedgehogs and Shrews (*Erimaceus* and *Crocidura*). *Insectivora.*

Bats (*Chiroptera*) are plentiful.

Rodents (*Rodentia*) are represented by the common Porcupine, Hares, Ground-Squirrels (*Xerus*), Rats, and the Jerboas and Gerbilles—curious little nocturnal creatures living in holes in the desert sands. They have long hind legs and tails, progress by leaps like miniature kangaroos, are of a protective sandy coloration, and subsist entirely without water. *Rodentia.*

Much the most interesting to the general traveller and sportsman are the *Ungulata* or hoofed animals, and in this "big game" the Sudan is particularly rich. *Ungulata.*

The Elephant is found on the Setit (from which during the Kharif or rainy season it ranges as far north as the Gash), the Upper Atbara, the Rahad, the Dinder, and the Blue Nile; it ranges across the Gezira in smaller numbers and becomes more plentiful again along the Upper Sobat, Pibor, the Bahr-el-Jebel, in the Bahr-el-Ghazal Province, along and west of the Bahr-el-Arab as far north as Kalaka. The ivory from these southern swampy districts is much larger than that from the Blue Nile and Abyssinian frontier—tusks running up to 130 lbs. or so in weight—but it is not of quite as good quality. No organized effort to capture and train adult African elephants has been made in modern times, and attempts to rear the young on cow's or goat's milk or farinaceous substitutes have generally failed.

The Black Rhinoceros (*R. bicornis*) was found as far north as the Gash in 1880; a very few still remain on the Setit, the Rahad, Dinder and Blue Nile; on the Bahr-el-Jebel, in the Bahr-el-Ghazal Province, and on the Bahr-el-Arab it is less scarce, while there is some reason to believe that in this last-named tract of country the White Rhinoceros (*R. Simus*) is not yet extinct. The destruction of Rhinoceroses in the Sudan is absolutely prohibited.

A curious little animal somewhat doubtfully placed by naturalists near the Rhinoceroses is the *Hyrax*, a small animal, in shape somewhat resembling a guinea-pig, which inhabits rocky hills in many parts of the Sudan.

The Wild Ass is found in some of the Eastern deserts; while Zebras (probably Grant's Zebra) just extend into Sudan territory north of Gondokoro on both banks of the Bahr El Jebel.

Buffalo—the shorter-horned northern form (*Bos capifer equinoctialis*) are numerous in suitable localities, and appear to be holding their own; their distribution is roughly the same as that given for the Elephant.

Of Hartebeests, *Bubalis tora* is common on the Setit, the Upper Atbara and the Blue Nile tributaries; *Bubalis jacksoni* takes its place on the White Nile, Bahr-el-Ghazal and in S.W. Kordofan; a much scarcer and more local species, apparently *Bubalis Neumanni* has been found on the White Nile near J. Ahmed Agha. The Tiang* or Bastard Hartebeest (*Damaliscus tiang*) is abundant in the Gezira, and in the southern and western parts of the Sudan: on the eastern side of the country it does not range north of the Dinder.

The Water-buck (*Cobus defassa*) is generally distributed where water and grazing are to be found; the beautiful Mrs. Gray's Water-buck (*C. maria*)—the males of which are marked with a snow-white patch on the withers—is one of the most local of African Antelopes, inhabiting only the swamps of the Bahr-el-Ghazal and Bahr-el-Jebel.

The White-eared Cob (*C. leucotis*), commencing near Reuk, follows the White Nile upwards, increasing in abundance in the Bahr-el-Ghazal, occurring also on the Sobat and the Pibor, and extending along the Bahr-el-Jebel into Uganda. On this last river the Uganda Cob (*C. thomasi*) has been shot.

The Roan Antelope (*Hippotragus equinus bakeri*) is locally distributed from the Setit to the south-west of the Sudan; the Blue Nile tributaries are perhaps the chief stronghold of this noble beast.

The *Oryx leucoryx* is plentiful in Western Kordofan; the *Oryx beisa* occurs in one or two localities east of the Atbara. The Addax ranges into the deserts of the Western Sudan, but very few have yet been shot by any European.

The greater Kudu (*Strepsiceros capensis*) is one of the scarcer Antelopes in the Sudan, occurring locally in Kordofan, and from the Blue Nile to the neighbourhood of Suakin.

The largest known form of Eland (the *Taurotragus oryx gigas* of Von Heuglin) is found in the Bahr-el-Ghazal Province.

The Lesser Reedbuck (*Cervicapra bohor*) occurs on both the Blue and White Niles and their tributaries, the Blue Nile examples carrying the finest heads. The Bushbuck of the White Nile is *Tragelaphus scriptus*, the Blue Nile form being *T. decula*.

The commonest Gazelles of the Sudan are the Ariel, the Red-fronted, the Doreas, and Isabelline Gazelles (*Gazella semmeringi*, *G. rufifrons*, *G. dorcas*, and *G. isabella*), widely distributed; more local are the Addra Gazelle of Kordofan (*G. ruficollis*) and Heuglin's Gazelle of the Setit (*G. ptilonura*). Smaller common Antelopes are the Daiker, Dig-dig, and Oribi (*Cephalophus*, *Madoqua*, and *Ourebia*).

The Klipspringer (*Oreotragus saltator*) is found sparingly on the hills of the Red Sea Littoral.

Ibex (*Capra nubiana*) frequent the rocky hills of the Kassala and Suakin districts; Wild Sheep (*Ovis leuvia*) have a wider range, but are much scarcer and shier, and have not been recently shot in the Sudan.

Giraffes are in parts numerous, their range in the Sudan area being approximately that of the Elephant, except that they are absent from localities which are entirely swampy.

A few Hippopotami still remain as far north as Dongola, and a few are to be found near Khartoum. Up the White Nile and the Bahr-el-Ghazal they abound, to such an extent that in places they become dangerous or a positive nuisance.

Wart-hogs (*Phacochoerus*) are common and widely spread; while the Semmar Boar (*Sus sennarensis*) has only been obtained, and very rarely, in this one district.

A scaly ant-eater (*Manis*) occurs, and also a curious ant-bear (*Orycteropus aethiopicus*), very similar to the "Aard Vaark" of the Cape.

No Cetaceans have been found in the Sudan rivers.

Edentata.

Cetacea.

BIRDS.

The Bird fauna of the Sudan is rich and interesting. Visitors will be most struck by the aquatic species whose abundance on the rivers forms one of the most pleasing features of the scenery. The practice of shooting at birds from steamers (forbidden by law, as is all trading in plumes) cannot be too strongly deprecated. This practice has within the last 30 years banished most of the bird-life from the Egyptian parts of the Nile for ever.

Most of the birds, which are summer visitors to Europe, winter in the Sudan, or pass through it on their way further south. Conspicuous among these winter visitors are Hoopoes, Golden Orioles, Bee-eaters, Shrikes, Warblers, Wagtails, Flycatchers, &c. Small resident species are abundant, the various kinds of Weaver-finches predominating in numbers and collecting in vast flights. Among this family the beautiful scarlet and black "Dura-bird" (*Pyromelaena franciscana*) and the long-tailed Whydah Bird (*Steganura paradisica*) are specially noticeable. The handsome Glossy Starlings—characteristic African birds—are represented by the genera *Spreo*, *Lamprocolius*, and

* Quite recently a closely allied, but rather larger species, *Damaliscus korrugum*, has been shot in the deserts of Western Kordofan. It was previously believed to be entirely a West African form. Herr Matschie had, in fact, recorded it from near Lake Victoria, but leading English naturalists seemed inclined to consider him mistaken. That it ranges as far east as Long. 30° is now definitely proved.

† This species has recently, in the Khartoum Gardens, for the first time bred in captivity.

Lamprotornis. Several species of Nightjars occur, noteworthy among which is the remarkable Standard-Wing (*Macrodipteryx*), bearing a large racket-shaped web at the end of an elongated wire-like feather in each wing.

Colies, or "Mouse-birds," Kingfishers, Hornbills (chief among which is the great black-and-white *Bucorax abyssinicus*), Bee-eaters, Rollers and Cuckoos are well represented, as also are Larks and Wheatears. Shining little Sun-birds frequent the forests and enter the gardens in the towns.

Green parrakeets are common, and the grey parrot may be found on the Uganda boundary.

Of birds of prey there are Vultures, Eagles, Falcons, Ospreys, Harriers, Buzzards, Hawks, and Owls in great variety—among which may be mentioned the Noisy River Eagle (*Haliaeetus vocifer*), the Secretary Bird (*Serpentarius secretarius*), and the handsome Bateleur Eagle (*Helotarsus caudatus*).

The rivers abound with Pelicans, Cormorants, Darters, Herons, Egrets, Bitterns, Storks, Ibises, and Spoonbills. Among these the great carrion-feeding Adjutant or Marabou (*Leptoptilus crumeniferus*) is conspicuous. The remarkable and very local Whale-headed Stork (*Balaniceps rex*) is found in the swamps of the Bahr-el-Ghazal and Bahr-el-Jebel, while the stately Saddle-billed Stork (*Ephippiorhynchus senegalensis*)—iridescent black and white with long



COURT OF THE PALACE, KHARTOUM, WITH *Balaniceps rex*.

brilliantly-coloured bill—is more widely met with. Flamingoes are scarce; Spur-winged and Egyptian Geese, and Whistling Teal, resident and plentiful. Their numbers are swelled by large hosts of northern-breeding ducks, which arrive in the autumn and remain till the spring. Vast numbers of Plovers, Godwits, Whimbrels, Sandpipers, and Terns also winter on the Nile. Snipe occur, but in comparatively small numbers, the area of irrigated land being very limited, and the grasses of the Nile swamps being too high and thick for them.

Three species of Sandgrouse are very abundant; the commonest (*Pterocles exustus*) affords the best bird shooting in the country—in the dry season they daily flight in thousands from the deserts to drink at the rivers. Doves and Guinea-fowl swarm in most parts: Francolins are more local and less plentiful. Quail are also found in parts.

A large Bustard (*Eupodotis arabis*) is plentiful and gives pretty rifle shooting. Three or four smaller bustards also occur.

The strikingly-beautiful Crowned Crane (*Balcarica pavonina*) is resident and common, and in the winter immense flights of Common Cranes (*Grus grus*) and smaller numbers of the Demoiselle (*Grus virgo*) spread over the country.

The Ostrich is generally distributed, but is most abundant in Western Kordofan.

REPTILES.

The common African Crocodile (*Crocodilus niloticus*) abounds in the Sudan rivers. Large Monitor Lizards or "Waranas," reaching 5 or 6 feet in length, are not uncommon: among smaller lizards are various Chamcleous Geckoes, and Skinks.

Soft-backed river Turtles (*Trionyx*) are plentiful. A common land Tortoise is *Testudo calcarata*; a common aquatic Tortoise is *Sternotherus adansonii*.

Of snakes the largest is *Python seba*; of poisonous species the Cobra, the Horned Cerastes, and, further south, the Puff-Adder occur: harmless species are more numerous. On the whole, snakes in the Sudan are not plentiful enough to be troublesome, and the mortality due to snake-bite seems insignificant.

Batrachians are rather poorly represented: a Toad (*Bufo regularis*) very like the common European species is the most abundant.

FISH.

The Nile fish have recently been very thoroughly investigated, the collection formed by Mr. Loat, under the auspices of the Egyptian Government, being the largest ever brought together from one country.

Those interested in the subject may note that the scientific results of the "fish survey" will shortly be published in the form of a Monograph, by Mr. G. A. Boulenger.

[Briefly speaking, it may be said that the rivers swarm, almost throughout, with fish; they are mostly of a coarse kind, some running to an immense size—40 to 50 lbs. being quite an ordinary weight for some species.—NOTE BY EDITOR.]