

*By kind permission of*

H.M. KING EDWARD VII.

*[F. Knott, Berlin.]*



*By kind permission of*

H.H. THE KHEWVE ABBAS HILMI PASHA.

*[Dietrich, Cairo.]*

*(To face p. 1.)*

[All rights reserved.]

# THE ANGLO-EGYPTIAN SUDAN:

## A COMPENDIUM PREPARED BY OFFICERS OF THE SUDAN GOVERNMENT.

EDITED BY

LIEUT.-COLONEL COUNT GLEICHEN, C.V.O., C.M.G., D.S.O.

*(Late Director of Intelligence, Sudan Government and Egyptian Army, and Sudan Agent, Cairo.)*

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.*



(Wt. 8207 1500 9 | 05—II & S 8874)



## PREFACE.

---

THE following pages contain a comprehensive description of the Anglo-Egyptian Sudan in 1905. This includes revision and amplification of the "Handbook of the Sudan" (1898) and of the "Supplement to the Handbook of the Sudan" (1899), besides a great deal of additional information as to the resources, development, administration, commerce, etc., of the country, shewing its progress since 1899. It may, however, be well understood that the description of many parts of the country is still far from complete.

The chapters have been compiled by various officers in the Sudan Administration; but the main work of editing and revision has fallen on Lieut.-Colonel Count Gleichen (the Editor), who, from the somewhat indiscriminate mass of reports, documents and books at his disposal, has evolved a compendium which cannot fail to be of great use and value to the officers and officials of the Sudan Government. I even venture to hope that such of the general public as may be interested in this vast country, its history, and its future, will find in the following pages a useful work of reference until a more complete and comprehensive work is forthcoming.

[The loss to the Sudan Government of the services of Count Gleichen, who, since he undertook this work, has been transferred to the Military Attachéship at Berlin, is much to be regretted, and that he should have been able to continue the compilation in his new position speaks volumes for his industry and capacity.]

The Editor's thanks are particularly due to Sir William Garstin, G.C.M.G., and Captain Lyons (Director of Egyptian Government Surveys) for a mass of valuable information about the White Nile, and to Captain H. H. S. Morant (Assistant Director of Intelligence), for assistance rendered in compiling and editing.

The work has been divided into three Parts (Geographical and Descriptive, Historical, and Routes); the last Part, for convenience of practical reference, being bound separately (by chapters) as the second volume.

[For practical purposes of travel, sport, etc., the books noted on p. 213 will be found indispensable.]

REGINALD WINGATE, *Major-General*,

Sirdar and Governor-General of the Sudan.

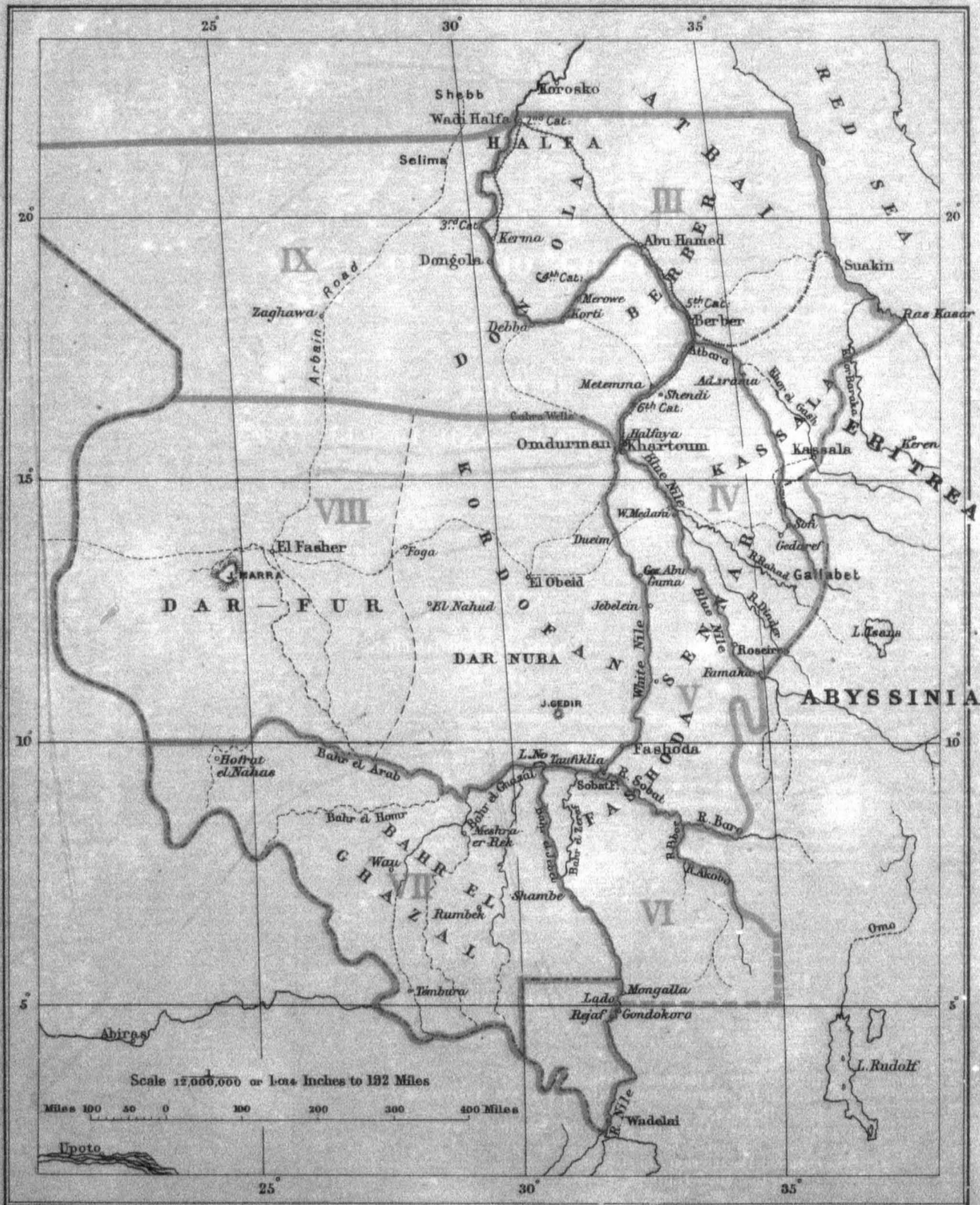
*Khartoum, 9th January, 1905.*

EDITORIAL NOTE.—*The indulgence of readers is requested in the matter of possible small errors in cross-references, Index, etc., for, during the progress of the work through the press in London, the majority of the compilers and proof-correctors have been in the Sudan and the Editor in Germany.—G.*

*Berlin, 22nd March, 1905.*



# “THE ANGLO-EGYPTIAN SUDAN”



I.D.W.O. N° 1793

Lith<sup>d</sup> at the Intell. Div., War Office, Oct. 1903

DIAGRAM OF CHAPTERS  
IN VOL. I, Part I, & IN VOL. II.

# TABLE OF CONTENTS.

## PART I. (GEOGRAPHICAL AND DESCRIPTIVE.)

### CHAPTER I.

#### GENERAL DESCRIPTION.

(The Editor.)

	PAGE
Boundaries ; Population ; Towns ; Administration ... ..	1
Army ... ..	3
Revenue and Expenditure. ( <i>Bernard</i> ) ... ..	4
Communications ... ..	7
Resources and Commerce ... ..	7
Justice. ( <i>Bonham-Carter</i> ) ... ..	9
Religion ... ..	10
Education ; Climate ... ..	11
Game ; Slavery ; Forests. ( <i>Brown</i> ) ... ..	12

### CHAPTER II.

#### THE WHITE NILE.

(The Editor.)

(i) Introductory—General—Flood—Historical ... ..	13
(ii) General Description (down stream) ; Albert Nyanza to Mediterranean ... ..	16
(iii) River Discharges ... ..	17
(iv) Navigability : Boats and Steamers ; Landing Places ... ..	19
(v) Climate : Winds ; Temperature ... ..	21
(vi) Detailed Description (up stream) ;	
Section (1).—Halfa to Merowe ... ..	22
(2).—Merowe to Khartoum ... ..	35
Description of Khartoum and Omdurman ... ..	47
(3).—Khartoum to Lake No ... ..	52
(4).—Lake No to Gondokoro. ( <i>Garstin and Lyons</i> ) ... ..	73

### CHAPTER III. NORTH-EASTERN SUDAN.

(Morant.)

	PAGE
(Country bounded on the north by the Sudan-Egyptian frontier, on the west by the Nile from that frontier to the mouth of the Atbara, on the south by the Atbara and Abyssinian and Eritrean frontiers, and on the east by the Red Sea.)	
Section 1.—Country between Halfa and the Atbara mouth, along the Nile banks. ( <i>Jackson, Hayes-Sadler, etc.</i> ) ... ..	83
„ 2.—Country between Halfa, Berber, Suakin, and the intersection of the 22nd parallel with the Red Sea :—	
(a) Between the Railway and the Nile. ( <i>Talbot</i> ) ... ..	85
(b) East of the Railway (or “the Atbai”). ( <i>Talbot, Bramly, Longfield</i> )	86
(c) The Bisharin. ( <i>Bramly</i> ) ... ..	91
(d) The Alabda. ( <i>Hopkinson and Bramly</i> ) ... ..	92
„ 3.—Suakin and District. ( <i>Playfair, Kerr, etc.</i> ) ... ..	94
„ 4.—Country between the Berber-Suakin road, the Atbara, and the Abyssinian and Eritrean frontiers :—	
(a) Country between the Berber-Suakin road and latitude of Kassala. ( <i>Parker</i> ) ... ..	96
(b) Kassala ... ..	97
(c) The Khor Gash ... ..	99
(d) Country south of Kassala to the Setit ... ..	99
(e) „ „ the Setit ... ..	99
(f) The Atbara and Tributaries ... ..	100

### CHAPTER IV. CENTRAL EASTERN SUDAN.

(Morant.)

(Country between the Nile and Abyssinia, bounded by the Atbara and the Blue Nile.)	
Section 1.—Country between the Atbara and the Niles, from El Damer southwards to the Abu Haraz Sofi line ... ..	103
„ 2.—Gedaref and District ... ..	106
„ 3.—Gallabat and District ... ..	107
„ 4.—Country between Blue Nile, Dinder, and Rahad, with description of these rivers	109
Table of distances on the Blue Nile ... ..	115

### CHAPTER V. CENTRAL SUDAN.

(Morant.)

(Country between the White Nile and Abyssinia, bounded by the Blue Nile and Sobat.)	
Section 1.—The Gezira (Khartoum to the Sennar-Goz Abu Guma line) ... ..	117
2.—Country south of Sennar-Goz Abu Guma line :—	
(a) General Description ... ..	119
(b) Dar Fung (including Burun and Keili). ( <i>Gwynn and Gorringer</i> ) ... ..	122
(c) Fazogli. ( <i>Smyth</i> ) ... ..	123
(d) The Dinkas on White Nile. ( <i>Wilson</i> ) ... ..	126
(e) Selim Baggara ... ..	130

### CHAPTER VI. SOUTH-EASTERN SUDAN.

(Morant.)

(The Sobat and tributaries, and country south of the Sobat and north of N. lat. 5° between the Abyssinian frontier and the Bahr El Jebel, including description of the Bahr El Zeraf, R. Atem, etc.)	
Section 1.—Sobat and tributaries ... ..	131
2.—The country south of the Sobat and north of N. lat. 5°, between Bahr El Jebel and Abyssinian frontier :—	
(a) General description ... ..	141
(b) Bahr El Zeraf. ( <i>Wilson</i> ) ... ..	142
(c) R. Awai or Atem. ( <i>Liddell</i> ) ... ..	144
(d) Bor and south. ( <i>Tarstig and Burton</i> ) ... ..	144
(e) The Beri tribe. ( <i>Burton</i> ) ... ..	147
(f) Country south of the Akobo. ( <i>Austin</i> ) ... ..	148
(g) The Upper Fihor. ( <i>Conges</i> ) ... ..	151
Table of distances on the Sobat ... ..	153

## CHAPTER VII.

## SOUTH-WESTERN SUDAN.

(Boulnois.)  
(THE BAHR EL GHAZAL.)

	PAGE
1. Introductory ... ..	153
2. General Description ... ..	153
3. Rivers and Water Supply ... ..	154
4. Administration ... ..	154
5. Resources. (Boulnois and Broun) ... ..	154
6. Climate and Hygiene. (Haymes) ... ..	156
7. Forestry. (Broun) ... ..	157
8. Communications and Transport ... ..	159
9. Tribes ... ..	159
10. Game ... ..	161
11. Religious Beliefs. (Cummins) ... ..	162
12. Dinka and Bongo Vocabulary. (Cummins and Türling) ... ..	163
13. Itinerary of Bahr el Ghazal River:—Lake No to Meshra el Rek. (Garstin, Peake, Editor, etc.) ... ..	165

## CHAPTER VIII.

## WESTERN SUDAN.

(The Editor.)  
(KORDOFAN, DARFUR, AND SHILLUK COUNTRY.)

Section 1.—Kordofan. (Lloyd):—		
1. General Description ... ..		173
2. Inhabitants ... ..		178
3. Towns ... ..		181
4. Animals ... ..		182
5. Climate and Health. (Stallard) ... ..		183
" 2.—Dارفur. (Morant) ... ..		184
" 3.—The Shilluks and their Country. (Editor, etc.) ... ..		192
Appendix: History and Religion of Shilluks. (Bankholzer, Giffen, etc.) ... ..		197

## CHAPTER IX.

## NORTH-WESTERN SUDAN.

(Morant.)

(Country west of the Nile, south of latitude 22° and north of Kordofan.)

Section 1.—Desert west of the Nile and north and west of Wadi El Gab. (Hodgson, Currie, etc.) ... ..		201
" 2.—Wadi El Gab. (Turner, Colville, Hunter, Garstin) ... ..		204
" 3.—"Bayuda Desert." (Fowler, etc.) ... ..		207
Report on El Ein. (Carey) ... ..		210

## CHAPTER X.

## COMMUNICATIONS

(The Editor.)

Section 1.—Railways. (Macaulay) ... ..		213
" 2.—River Communications. (Bond) ... ..		215
" 3.—Roads ... ..		217
" 4.—Riding and Transport Animals ... ..		217
" 5.—Posts and Telegraphs. (Liddell) ... ..		218

## PART II. (HISTORICAL.)

(*The Editor.\**)

### CHAPTER I.

	PAGE
From the earliest times to the Arab Invasion (A.D. 640) ... ..	221

### CHAPTER II.

From the Arab Invasion to the time of Mohammed Ali ... ..	227
---	-----

### CHAPTER III.

From Mohammed Ali's conquest (1819) to the end of 1882 ... ..	231
---	-----

### CHAPTER IV.

Events on the Nile from 1882 to May, 1898 ... ..	247
--	-----

### CHAPTER V.

The remainder of the Sudan from 1882 to May, 1898 :—	
(a) Darfur, Kordofan and Dar Fertit ... ..	255
(b) The Eastern Sudan ... ..	257
(c) Bahr el Ghazal and Equatoria ... ..	259

### CHAPTER VI.

From May, 1898, to the final destruction of the Dervish power (end of 1899) ... ..	265
--	-----

### CHAPTER VII.

From 1900 onwards ... ..	273
Governors-General of the Sudan ... ..	280

---

\* Except part of Chapter II and most of Chapter III (taken from "Report on Egyptian Provinces of Sudan," I.D.W.O., 1884)



	PAGE
1. Sudan Agreement, 19.1.99 (Great Britain and Egypt) ... ..	283
2. Suakin Annex to above, 10.7.99 (Great Britain and Egypt) ... ..	285
3. Declaration re Spheres of Influence, 21.3.99 (Great Britain and France) ... ..	285
4. Agreement re Bahr El Ghazal, 12.5.94 (Great Britain and Congo Free State) ... ..	286
4A. Withdrawal of clause of above, 22.6.94 " " " " " "	288
5. Agreement re Tribes between Khor Baraka and Red Sea ( <i>Kitchener—Baratieri</i> ), 25.6.95/7.7 (Egypt and Eritrea) ... ..	288
6. Agreement re Frontier between Red Sea and Khor Baraka ( <i>Parsons—Martini</i> ), 7.12.98 (Egypt and Eritrea) ... ..	289
7. Delimitation of Frontier between Khor Baraka and Sabderat ( <i>Walter—Bongiovanni</i> ), 1.6.99 (Sudan and Eritrea) ... ..	289
8. Description of Frontier between Sabderat and Todluk ( <i>Talbot—Colli</i> ), 16.4.01 (Sudan and Eritrea) ... ..	290
9. Description of Frontier between Abu Gamal and Setit ( <i>Talbot—Martinelli</i> ), 18.2.03 (Sudan and Eritrea) ... ..	290
10. Declaration re Sudan—Eritrean—Abyssinian Frontier, Rome, 22.11.01 (Sudan and Eritrea)	291
11. Grazing Agreement ( <i>Collinson—Martini</i> ), 28.2.01 (Sudan and Eritrea) ... ..	291
12. Customs Convention, Rome, 26.11.01 (Sudan and Eritrea). ( <i>Martini—Gleichen</i> ) ... ..	292
13. Postal " " " " " " " " ... ..	294
14. Telegraph " " " " " " " " ... ..	294
15. Treaty re Frontier, etc., 15.5.02 ("Great Britain and Abyssinia") ... ..	295
16. " " " " " " " " (Great Britain, Eritrea, and Abyssinia) ... ..	296
17. Duties on Uganda goods, 21.4.02 (Sudan and Uganda) ... ..	297

18. Agreement <i>re</i> Bahr El Ghazal, etc., 14.8.94 (France and Congo Free State) .....	297
19. " " Frontier, 10.7.00 (Eritrea and Abyssinia) .....	298
20.*Berlin Act, 26.2.85: Free Trade in Congo Basin, etc. ....	—
21.*Brussels Act, 2.7.90 (in force since 2.4.94): Slave Trade, Firearms, Ammunition, etc. Amongst others, Great Britain, France, Italy, Russia, Turkey and Abyssinia are Signatories .....	—

### PART III.

( ROUTES. )

Not printed here, but text may be found in Hertelet's "Map of Africa by Treaty," 1896 Edition, pp. 20 to 47, and pp. 48 to 106 respectively.

## LIST OF ILLUSTRATIONS.

	PAGE
The Sovereigns of the Anglo-Egyptian Sudan (frontispiece) ... ..	to face 1
Khartoum Palace, from the river. (D. J.) ... ..	1
Market scene, Gezira. (D. J.) ... ..	8
The Earl of Cromer and Sir W. Garstin ... ..	to face 15
The Eastern Nile bank, south of Halfa. (K.) ... ..	22
Jaalin Shepherd scene; corn-grinding stones, Omdurman. (T.) ... ..	46
The Governor-General and Sirdar ... ..	48
Khartoum, looking north from the War Office roof over Tuti Island. (K.) ... ..	51
" Palace, and garden, from the south-west. (K.) ... ..	51
Jebelcin (G.); Wooding station near Gez Abu Guma; Jebel Ahmed Agha. (G.) ... ..	61
Akunere, Shilluk village (T.); Shilluk maiden with household utensils. (T.) ... ..	65
Kodok: Roman Catholic Mission Station, Lal. (T.) ... ..	69
Taufikia. (G.) ... ..	71
Lake No; Shambe ... ..	72
Kira. (P.); Lado. (P.) ... ..	78
Gondokoro ... ..	81
Mongalla. (G.) ... ..	82
On the Blue Nile. (T.) ... ..	110
Forest scenery, west bank, Upper Blue Nile. (D. J.) ... ..	112
On the Blue Nile. (D. J.) ... ..	112
Scenes in the Southern Gezira. (D. J.) ... ..	116
In the Dar el Fung; village scene, Barun country. (D. J.) ... ..	121
Ingassana village; hill scenery, Dar el Fung. (D. J.) ... ..	124
Dinka: man and girl. (T.) ... ..	127
American Protestant Mission, Sobat. (M.) ... ..	133
The Bahr el Zeraf. (G.) ... ..	141
Aniak women at Itang. (M.) ... ..	150
Woman of Dar Fertit. (T.) ... ..	164
Bahr el Ghazal. (G.); River Rohl. (G.) ... ..	171
Kordofan Arabs with Chief. (S. D.) ... ..	174
Taaisha (Buggara) girl. (T.) ... ..	178
Nuba woman, daughter, and baby. (T.) ... ..	180
Darfur girl. (T.) ... ..	186
Old woman, Darfur. (T.) ... ..	187
The Darfur Mahmal passing through Omdurman ... ..	188
Shilluk. (T.) ... ..	192
" warriors. (T.) ... ..	195
Mek Kur wad Nedok. (T.); Shilluks on a visit. (T.) ... ..	198
Shilluk village scene. (T.) ... ..	200
Dongolawi merchant. (T.) ... ..	203
Bayuda Desert Arabs. (S. D.) ... ..	207
Colossal ram of Amenhotep III., Jebel Barkal. (W.) ... ..	223
Ethiopian King from Meroë. (W.) ... ..	224
One of the animals at Nagaa. (W.) ... ..	226
Stone lamb from Soba. (W.) ... ..	228
Sudanese women. (T.) ... ..	233
" maiden. (T.) ... ..	241
Sir H. von Slatin Pasha ... ..	245
General Gordon ... ..	to face 247
F.-M. Viscount Wolseley ... ..	249
Types of Sudanese soldiers.—The raw material. (T.) ... ..	250
" —The finished article. (T.) ... ..	251
Khalifa's house, Omdurman. (S. D.) ... ..	252
Captured Dervish Emirs. (J. K. W.) ... ..	254
Old woman of Dar Nuba. (T.) ... ..	264
General Viscount Kitchener ... ..	to face 265
The Mahdi's tomb, 3rd September, 1898. (S. D.) ... ..	266
The late Emir Ahmed Fedi. (J. K. W.) ... ..	267
After Um Debreikat; body of the Khalifa in foreground. (J. K. W.) ... ..	269
The end of the Mahdist dominion. (J. K. W.) ... ..	272
Sons of the Mahdi and Khalifa ... ..	275

LIST OF ILLUSTRATIONS—*continued.*

	PAGE
Lord Kitchener at the Gordon College, Khartoum. (K.) ... ..	281
Sudd-scape ... ..	299
Ambach ... ..	302
Papyrus. (G.) ... ..	305
Balaeniceps Rex at Khartoum. (W.) ... ..	309
Nagaa : Egypto-Roman buildings in the desert. (L.) ... ..	314

The above are from photographs by the following gentlemen, to all of whom, especially to the three first named, the warm thanks of the Editor are due for the kind permission granted to him to use the photographs, and in many cases the blocks themselves. Those not initialled above are acknowledged on the illustrations themselves.

- T. Mr. R. Türistig, Omdurman.
- G. Sir Wm. Garstin.
- D. J. Mr. Digby Jones.
- K. Mr. Hallil Kemeid, Editor "Standard Guide to Egypt and Sudan."
- L. Captain Longfield, Egyptian Army.
- M. Captain H. H. S. Morant, Egyptian Army.
- P. Major Phipps, Egyptian Army.
- S. D. Lt.-Col. Stanton, Egyptian Army, per Mr. Dennis, Scarborough.
- W. Mr. John Ward, F.S.A., Belfast.
- J. K. W. Lt.-Col. Watson, Egyptian Army.

Those entirely unacknowledged are by the Editor and his sister.



# ABBREVIATIONS (v. APPENDIX H.).

H. S. C. History of Sudan Campaign. (Colville.)	S. H. S. Supplement to Handbook of the Sudan. (Gleichen.)
O. G. H. The Nile above the 2nd Cataract. (O'Grady Haly.)	A. Arabic.
N. O. Report on the Nile and Country between Dongola, Suakin, Kassala and Omdurman (Gleichen).	D. Dinka.
H. S. Handbook of the Sudan (Gleichen).	S. Shilluk.

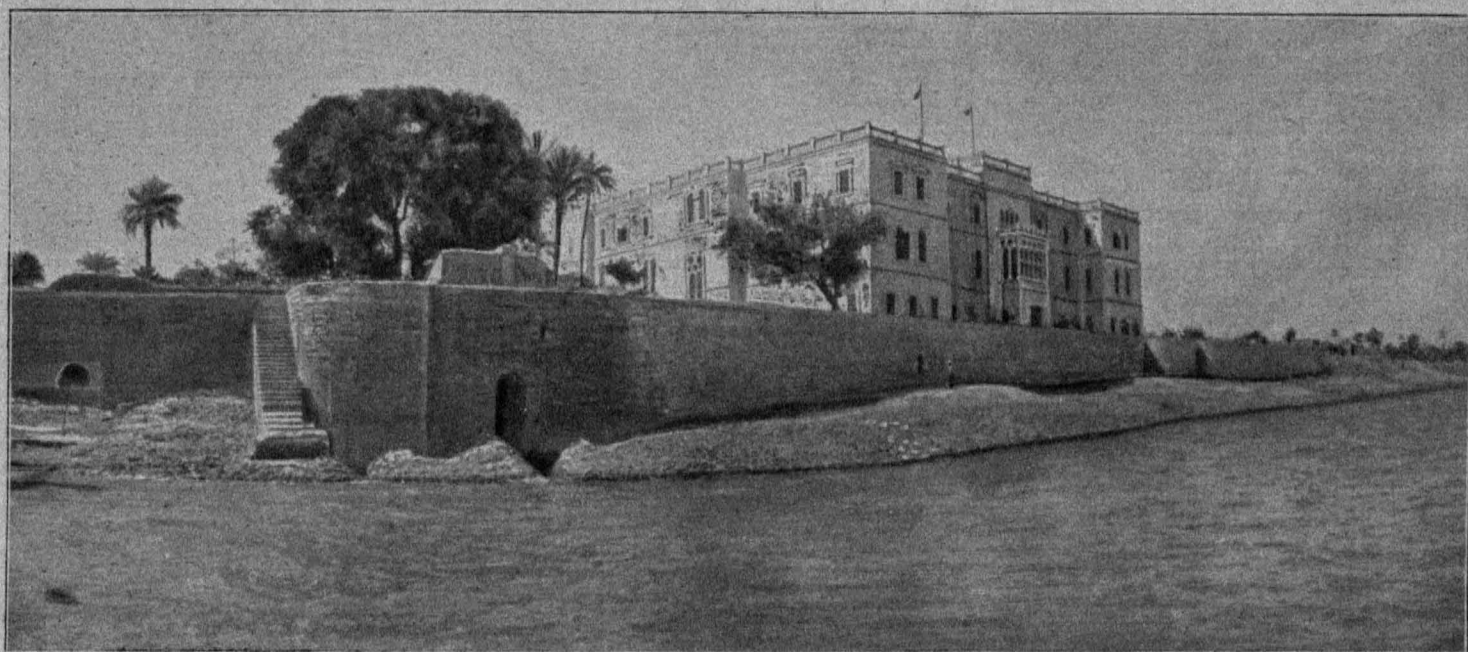
N.B.—According to the latest system of transliteration, many words formerly spelt with a "k" (Kâf ك) are now spelt with a "g," e.g., Wadi el Gab, Yagub, etc. The word for hill is always spelt Jebel, whether pronounced hard or soft.

## LIST OF CONTRIBUTORS TO VOL. I.\*

E.A. = Egyptian Army ; S.G. = Sudan Government.

Mr. C. H. Armbruster, Deputy Inspector, Kassala.	Col. H. W. Jackson, C.B., Governor of Dongola.
Attia Effendi, Intelligence Department.	Mr. B. H. Jessen.
Maj. Austin, C.M.G., D.S.O.	Capt. Julien, French Army.
Rev. Father Banholzer, R.C. Mission, Lul.	Mr. Kerr, Deputy Inspector, S.G., Suakin.
Dr. A. Balfour, Sanitary Adviser to S.G.	Commander Colin Keppel, R.N.
Lt.-Col. E. E. Bernard, Financial Secretary S.G.	Capt. C. H. Leveson, Inspector, Kordofan.
Lieut. Bond, R.N., Director of Steamers and Boats.	Capt. J. S. Liddell, Director Posts and Telegraphs.
Capt. N. Borton, Inspector, Mongalla.	Capt. H. D. W. Lloyd, Inspector, Nahud.
Maj. W. Boulnois, Governor Bahr el Ghazal Province.	Capt. W. E. Longfield, S.G. Railways.
Mr. A. Jennings-Brainly, Deputy Inspector S.G.	Capt. H. G. Lyons, late R.E., Director Egyptian Government Surveys.
Mr. A. F. Broun, Director of Woods and Forests.	Maj. G. B. Macauley, Director Sudan Railways.
Mr. Bulpett.	Maj. G. E. Matthews, Governor of Upper Nile Province.
Mr. A. L. Butler, Superintendent Game Preservation Department.	Maj. W. S. R. May, A.F.S., S.G.
Mr. G. R. Carey, Mining Engineer.	Capt. H. H. S. Morant, Assistant Director of Intelligence, Sudan.
Mr. C. E. Bonham-Carter, Legal Secretary S.G.	Naum Bey Shoucair, Sudan Agent's Office.
The Earl of Cromer, G.C.B., etc., etc.	Mr. Oscar Neumann, Berlin.
Mr. J. W. Crowfoot, Sudan Education Department.	Maj. M. Penke, C.M.G., Director of Artillery, E.A.
Col. H. E. Colville.	Capt. A. C. Parker, Deputy Assistant Secretary, S.G.
Lieut. D. Comyn, Inspector, Upper Nile Province	Capt. N. Playfair, late Acting Governor, Suakin.
Capt. S. L. Cummins, R.A.M.C., E.A.	Commander R. Poore, R.N.
Mr. J. Currie, Director of Education.	Capt. W. Hayes-Sadler, Governor, Halfa Province.
Capt. W. Doran, late E.A.	Capt. R. V. Savile, Inspector, Kassala.
Capt. Dugmore.	Maj. Slade, R.A.
Sir J. Fowler, C.E.	Sir Rudolf von Slatin Pasha, K.C.M.G., Inspector General, S.G.
Sir W. Garstin, G.C.M.G., Under Secretary of State for Public Works (Egypt).	Maj. N. M. Smyth, V.C., late E.A.
Rev. J. K. Giffen, American Protestant Mission, Sobat.	Col. W. S. Sparkes, C.M.G., late Governor Bahr el Ghazal.
Lt.-Col. Count Gleichen, C.V.O., C.M.G., D.S.O., Editor.	Mr. Spires, Collector, Gondokoro.
Lt.-Col. G. F. Gorringer, C.M.G., D.S.O., R.E., Governor Sennar Province.	Capt. H. G. F. Stallard, R.A.M.C.
Maj. C. W. Gwynn, C.M.G., D.S.O., R.E., Sudan Surveys.	Maj. E. A. Stanton, Governor of Khartoum.
Rev. Ll. Gwynne, Chaplain, Khartoum.	Col. Hon. M. G. Talbot, Director of Surveys, Sudan.
The late Capt. Haymes, R.A.M.C.	Lt.-Col. A. E. Turner, late R.A.
Col. St. G. C. Henry, C.B., A.G., late Governor of Kassala.	Mr. R. Türistig, Photographer, Omdurman.
Maj. Sir H. B. Hill, Bt., Governor of Barber.	Mr. J. Ward, F.S.A.
Capt. H. G. Hodgson, Inspector, Dongola.	Maj. E. B. Wilkinson, Governor of Kassala.
Maj. H. O. B. Hopkinson, Commandant Alexandria Police, late E.A.	Capt. H. H. Wilson, Inspector, Sobat.
Col. A. Hunter, late E.A.	Maj.-Gen. Sir F. R. Wingate, K.C.B., K.C.M.G., D.S.O., Sirdar and Governor-General, Sudan.

\* Including those whose works or reports have been utilised.



THE PALACE, KHARTOUM (LOW NILE).

## PART I.

### CHAPTER I.

#### GENERAL DESCRIPTION.

The Anglo-Egyptian Sudan comprises that country which is bounded on the north by the 22nd parallel of north latitude ; on the east by the Red Sea, Eritrea, and Abyssinia ; on the west and south-west by a line running through the Libyan Desert (defined by the Anglo-French Agreement of March, 1899), by the Sultanate of Wadai, and by the line of rising ground forming the watershed between the Congo and Shari on one side, and the Nile on the other ; and on the south by the Lado Enclave\* and east of the Nile, the 5th parallel of north latitude. Boundaries.

The greatest length from north to south is about 1,250 miles, and from east to west about 1,080 miles. (*Vide* Appendix A for text of Frontier treaties.)

The estimated area of the territory is about 1,006,000 square miles, and the population about 2,000,000. For Area and population.

The capital and seat of Government of the country is Khartoum, situated at the junction of the White and Blue Niles (lat.  $15^{\circ} 36'$ , long.  $32^{\circ} 32'$ ), and distant, as the crow flies, about 1,250 miles from the Mediterranean Sea. (*For description see Chap. II, p. 49.*) Capital and main towns.

The other chief towns of the country are Khartoum North (formerly termed Halfaya) and Omdurman (close to Khartoum), Halfa, Merowe, Berber, Wad Medani, Kassala, Suakin, Dueim, and El Obeid. (Detailed descriptions will be found in the various chapters dealing with them.)

#### ADMINISTRATION.

The Sudan is administered by a Governor-General (who is at present also Sirdar of the Egyptian Army) and under him by Mudirs (governors of provinces), assisted by inspectors and deputy inspectors† (British : military and civilian), and by Mamurs (Egyptian or Native officers).

\* Temporarily occupied by the Congo Free State.

† Full particulars of Conditions of Service, etc., of Government Civil Officials in the Sudan may be obtained from the Secretary to Selection Board, Finance Ministry, Cairo.

The text of the agreement of 1899, on which the administration is based, provides for the administration of the territory south of the 22nd parallel of latitude by a Governor-General, appointed by Egypt with the assent of Great Britain, and declares the general principles in accordance with which the administration shall be carried on. The British and Egyptian flags shall be used together; laws shall be made by proclamation; no duties shall be levied on imports from Egypt, and duties on imports from other countries shall not exceed those levied in Egypt; the import and export of slaves is prohibited, and special attention shall be paid to the Brussels Act of 1890 respecting the import and export of arms, ammunition, and spirits.

The "Capitulations" are not in force in the Sudan, nor are there any foreign Consuls.

The Sudan is divided into eight first class and four second class Provinces, as follows :—

Province.	Chief Town.	Province.	Chief Town.
<b>FIRST CLASS.</b>		<b>First Class—continued.</b>	
Bahr El Ghazal ... ..	Wau	Sennar... ..	Senga
Berber... ..	El Damer	Upper Nile ... ..	Kodok
Dongola ... ..	Merowe	<b>SECOND CLASS.</b>	
Kassala ... ..	Kassala	Halfa ... ..	Halfa
Khartoum ... ..	Khartoum	Suakin ... ..	Suakin
Kordofan ... ..	El Obeid	Gezira (Blue Nile) ... ..	Wad Medani
		White Nile ... ..	Dueim

Each Province is divided into a varying number of Districts, each of which is under an Egyptian or native Mamur, as follows :—

Province.	District.	Province.	District.
<b>FIRST CLASS.</b>		<b>First Class—continued.</b>	
Bahr El Ghazal ... ..	{ Deim Zubeir Wau Rumbek	Sennar ... ..	{ Sennar Senga Abu Naama Diuder (Abu Hashim) Roseires Dar Fung (Soda)
Berber ... ..	{ Robatab Berber Town " District El Damer Shendi	Upper Nile ... ..	{ Renk Kodok Taufikia Sobat Mongalla
Dongola ... ..	{ Argo Dongola Khandak Debba Korti Merowe	<b>SECOND CLASS.</b>	
Kassala ... ..	{ Kassala Gedaref Gallabat	Gezira (Blue Nile) ... ..	{ Abu Deleig Kandin Rufaa Mesellemia Wad Medani Managil
Khartoum ... ..	{ Khartoum Omdurman Wad Ramia	Halfa ... ..	{ Halfa Mahas (Dalgo) Sukkot (Kosha)
Kordofan ... ..	{ El Obeid Bera Khursi (Um Dam) Tazara Nahud Dilling Tendik Nuba Mountains (Talodi)	Suakin ... ..	{ Suakin Takar
		White Nile ... ..	{ Gattina Dudin Kawa Gedid



The chief Government officials, besides the Governor-General, are the Secretary-General, the Director of Intelligence and Agent-General (Cairo), the Inspector-General, the Legal Secretary, Financial Secretary, Director of Surveys, Director of Works, Director of Education, Director-General of Irrigation,\* Principal Medical Officer, Director of Woods and Forests, Director of Agriculture and Lands, Director of Railways, Director of Steamers and Boats, Director of Telegraphs and Posts, Director of Customs, Principal Veterinary Officer, Director of Slavery Repression Department\*, and Superintendent of Game Preservation Department.

The duties of these officials sufficiently explain themselves by their titles.

The following are the names, at present (1904), of the chief officials :—

Governor-General .. ..	Major-General Sir F. Reginald Wingate, K.C.B., K.C.M.G., D.S.O.
Secretary-General .. ..	Colonel F. J. Nason, D.S.O.
Inspector-General .. ..	El Lewa Sir Rudolf von Slatin Pasha, K.C.M.G., C.V.O., C.B.
Legal Secretary .. ..	E. Bonham-Carter, Esq.
Agent-General, Cairo .. ..	Lieut.-Colonel Lord E. Cecil, D.S.O.
Financial Secretary .. ..	„ „ E. E. Bernard.

All the above (with the exception of the Legal Secretary, the Directors of Education, Woods and Forests, Superintendent of Game Preservation, and Director of Agriculture and Lands, who are civilians) are at present British† officers attached to the Egyptian Army.

In addition to one British battalion, at present furnished by the British Army of Occupation in Egypt and The Army. quartered at Khartoum, nearly the whole of the Egyptian Army may be said to be in the Sudan. The normal garrisons of the Sudan are as follows :—

Province.	Battalions.			Squadrons.		Artillery.			Miscellaneous Additional Troops.†
	British.	Egyptian.	Sudanese.	Egyptian.	Sudanese.	Horse Battery.	Field Battery.	Garrison Company.	
Bahr-el-Ghazal ... ..	—	—	1	—	—	—	—	—	276 men, Geladia.
Berber ... ..	—	1	—	3	1	—	1	—	—
Dongola ... ..	—	1	—	—	—	—	—	—	—
Halfa ... ..	—	—	—	—	—	—	—	—	1 Railway Bat- talion.
Kassala ... ..	—	—	1	—	—	—	—	—	1 Battalion Arab Camel Corps.
Khartoum ... ..	1	4	1	—	—	1 (Max.)	2	2	Hd. - Qrs. A.G.'s Dept. and Works Dept.
Kordofan ... ..	—	—	1	—	—	—	—	—	4 Companies Camel Corps (3 Arab, 1 Sudanese).
Sennar ... ..	—	—	1	—	—	—	—	—	—
Suakin ... ..	—	1	—	—	—	—	—	—	—
Upper Nile ... ..	—	—	1	—	—	—	—	—	—
Totals ... ..	1	6	6	3	1	1	3	2	—

As a rule, the Governor of the Province, being the senior British officer, is in Military command of the troops in his Province.

\* This Department is under the Egyptian Government.

† Except the Inspector-General.

‡ Detachments of Medical Corps, Supply, Transport, Stores, Works, and Veterinary Departments are at all stations where necessary.

## REVENUE AND EXPENDITURE.

The following gives a table of revenue and expenditure since 1899 :—

Year.	Revenue.	Expenditure.	Deficit.
	£E.	£E.	£E.
1899	126,596	511,693	385,097
1900	156,888	614,780	457,892
1901	242,309	629,969	387,660
1902	270,226	639,493	369,267
1903	462,605	810,019	347,414
1904	531,000	815,500	284,500
1905*	535,883	915,646	379,763

1 £E. = 100 piastres = £1 0s. 6d.

The deficit is made up by the Egyptian Government, which now contributes annually to the cost of Civil and Military Administration in the Sudan the nominal sum of about £E.380,000. The actual sum contributed is, however, not really so large as this, for about £E.60,000 is paid in Customs dues in Egypt on goods going to the Sudan, which sum is absorbed by the Egyptian Government; and the Sudan Government pays the Egyptian Government an annual amount of between £E.122,000 and £E.282,000 (£E.186,757 in 1905) for the maintenance of that portion of the army which is in the Sudan.

Some changes were introduced into the system of accounts in 1903 which caused a considerable increase in the figures on both sides of the Budget of that year as compared with those for previous years, but this increase was apparent only and did not affect the amount of the contribution by the Egyptian Government towards the Civil and Military expenditure of the Sudan Government.

Besides the above budgetary expenditure, additional credits to the extent of £E.1,060,114 have been authorised since 1899, principally for completing and improving the railway between Halfa and Khartoum, for telegraph extensions, public works and for other purposes. Moreover, the entire cost of the railway now in course of construction between Suakin on the Red Sea and the Nile at a point near the Atbara River in the Berber Province, and expenditure connected with the new harbour works at Sheikh Barghout to the North of Suakin, will be borne by the Egyptian Government.

## SOURCES OF REVENUE AND TAXATION.

The revenue is derived at present from the following taxes, etc., which are imposed according to the circumstances of the Province :—

Land Tax.	Royalties.
Date Tax.	Customs.
Animal Tax.	Sales (of Government properties, etc.).
Road Tax.	Woods and Forests.
House Tax.	Miscellaneous, including rents, ferries, licences,
Boat Tax.	stamped paper, market and court fees, slaughtering dues, etc., etc.
Tribute from Tribes.	

LAND TAX.—A proportion of this tax is derived in certain Provinces from the "Ushur," or tenth part, tax. This is assessed on the value of the products of the land, and is paid sometimes in kind, but generally in cash.

The land tax is assessed on the extent and value of the irrigated land, and varies from 10 piastres to 60 piastres a feddan (acre). Rain lands pay less than irrigated lands, whilst those only recently coming under cultivation pay less than those already long cultivated, etc., etc.

THE DATE TAX is levied on date palms, at the rate of 2 piastres per tree, whether male or female.

ANIMAL TAX is levied on camels, mules, sheep, horses, etc., etc., at the following rates :—

	Piastres.		Piastres.
Camel ... ..	20	Sheep ... ..	1
Horse ... ..	3	Head of Cattle ... ..	5
Mule or donkey ... ..	3	Goat ... ..	$\frac{1}{2}$

\* Estimate only.

The ROAD TAX is a light tax levied in certain places with the object of keeping the roads open and safe, and the wells dug and in good order.

The BOAT TAX amounts to 2 piastres per ardeb capacity.

The HOUSE TAX amounts to one-twelfth of the annual rental value of the building.

The TRIBUTE FROM TRIBES is levied on those nomad tribes who own no lands or are not agriculturists. It is assessed by the Governor broadly on the value of their possessions in herds and other property.

Gum, ivory, ostrich feathers and india-rubber\* are the articles at present which pay a ROYALTY of 20 per cent. *ad valorem* to Government. The Royalty on ivory has been recently reduced to 15 per cent. as a temporary and tentative measure.

SALES AND MISCELLANEOUS explain themselves.

The following are the special services and estimated receipts and expenditure for 1904-5 :—

Budget.

### SPECIAL SERVICES.

	1905.		1904.	
	£E.	£E.	£E.	£E.
<i>I.—Loans not yet wholly expended.</i>				
Loan for the development of the Sudan Railway ... ..	...	...	55,000	...
Loan for the purchase of iron bases for Telegraph poles ...	...	...	18,500	...
Loan for improving the Sudan Railway and purchasing Rolling Stock... ..	528,000	...	528,000	...
Advance for special survey, Suakin-Berber projected Railway ... ..	10,000	...	10,000	...
Advance for the construction of the Suakin Port ... ..	30,985	...	30,985	...
Advance for the construction of Light-houses at Suakin ...	15,800	...	15,800	...
Advance for the excavation of a cutting and for improving and digging wells on the Suakin-Atbara line ... ..	16,000	...	16,000	...
		600,785		674,285
<i>II.—Credits not yet wholly expended.</i>				
Credit from Wakfs Administration for building mosques ...	5,000	...	10,000	...
Credits from the Egyptian Government :—				
1. Relief of poor Refugees ... ..	4,000	...	4,000	...
2. Extension of Telegraph line to the Bahr-el Ghazal Province ... ..	12,150	...	...	...
3. Partial cost of a steamer for development of trade on the Upper Nile (total cost being £E. 4,000) ...	2,850	...	...	...
Credits sanctioned against the surpluses of the years 1902 and 1903 ... ..	68,200	...	...	...
		92,200		14,000
<i>III.—Services outside the Budget.</i>				
Gordon Memorial College ... ..	3,590	...	3,590	...
		3,590		3,590
GRAND TOTAL ... ..	...	696,575	...	691,875

\* Trade in india-rubber is at present prohibited (December, 1904).

TABLE SHOWING THE SUDAN GOVERNMENT BUDGET FOR THE YEARS 1904-5.

RECEIPTS					EXPENDITURE.				



## COMMUNICATIONS.

(See Chapter X for details.)

Communication in the Sudan is maintained by :—(I) Railways ; (II) River ; (III) Roads.

(I) THE RAILWAY.—The Sudan Government Railway, a single line completed on the last day of 1899, runs from Halfa, crossing the Nubian desert, to Abu Hamed along the Nile bank to Khartoum North on the right bank of the Blue Nile opposite Khartoum (575 miles).

Another branch, also single, 203 miles, runs from Halfa to Kerma (35 miles north of Dongola) following the Nile. This is to be abandoned after the 31st December, 1904.

A line of railway joining Suakin on the Red Sea to the Nile near the mouth of the Atbara is now under construction ; it will be of the greatest benefit to the trade and development of the Sudan. Other railway projects at present under consideration are :—Abu Hamed to Merowe, Thamiam (near Suakin) to Kassala, and Omdurman to El Obeid.

The distance between Halfa and Aswan forms the only break in the railway communication between Khartoum and the Mediterranean Sea ; a service of Sudan steamers plies on this reach.

(II) RIVER.—North of Khartoum the river is navigable throughout except at the five cataracts ; at certain times of the year most of these are navigable, with difficulty. South of Khartoum communication is maintained along the White and Blue Niles and their affluents. During low Nile—January to June—the Blue Nile is not navigable. The White Nile is navigable up to Gondokoro in Uganda, though there are some difficulties in the way of navigation (*vide p. 73*). The Sobat and Baro are not navigable from January to beginning of May.

(III) ROADS.—Roads are, and must be for some time to come, the principal means of communication in the Sudan. Transport is chiefly performed by camels, mules and donkeys. The greater part of the Sudan, being level, lends itself without much difficulty to the making of roads suitable for carriages, though draught transport has not been in use hitherto to any extent. Bullock wagons are in use in the Bahr El Ghazal.

Some automobile carriages are now being tried in the different parts of the Sudan, and have so far given fairly good results.

## RESOURCES AND COMMERCE.

The chief natural resources of the Sudan at present lie in the forests of Kordofan and the Blue Nile, which produce gum (Hashab and Talh), ebony, furniture woods and fibre ; and in those of the Bahr El Ghazal, which produce india-rubber, gutta-percha, etc. ; also in the products of animals, such as ivory, ostrich feathers, rhinoceros horns, skins, etc.

There are large quantities of fine cattle in the country, especially on the Upper White Nile, but export of these is for the present forbidden.

As regards agricultural products, only the country lying close to the Nile and its tributaries is, as a rule, cultivated, and the people do not, so far, grow more than is necessary for their own use. The principal crops are dura (a kind of millet), beans, lentils, dukhn, sesame, onions, melons, and a little wheat and barley. In the Gezira, however, between the White and Blue Niles, and in the Gedaref district, large tracts are cultivated.

The Dongola Province is rich in date palms, and exports large quantities of dates.

There is a large opening for the growth and export of cotton. Little is grown at present, but the soil is favourable and the quality is good. Inducements, therefore, in the way of seed and promises to purchase what is grown, are being offered to the natives to cultivate this invaluable plant, and it is expected that the opening of the Nile-Red Sea Railway will considerably increase its production.

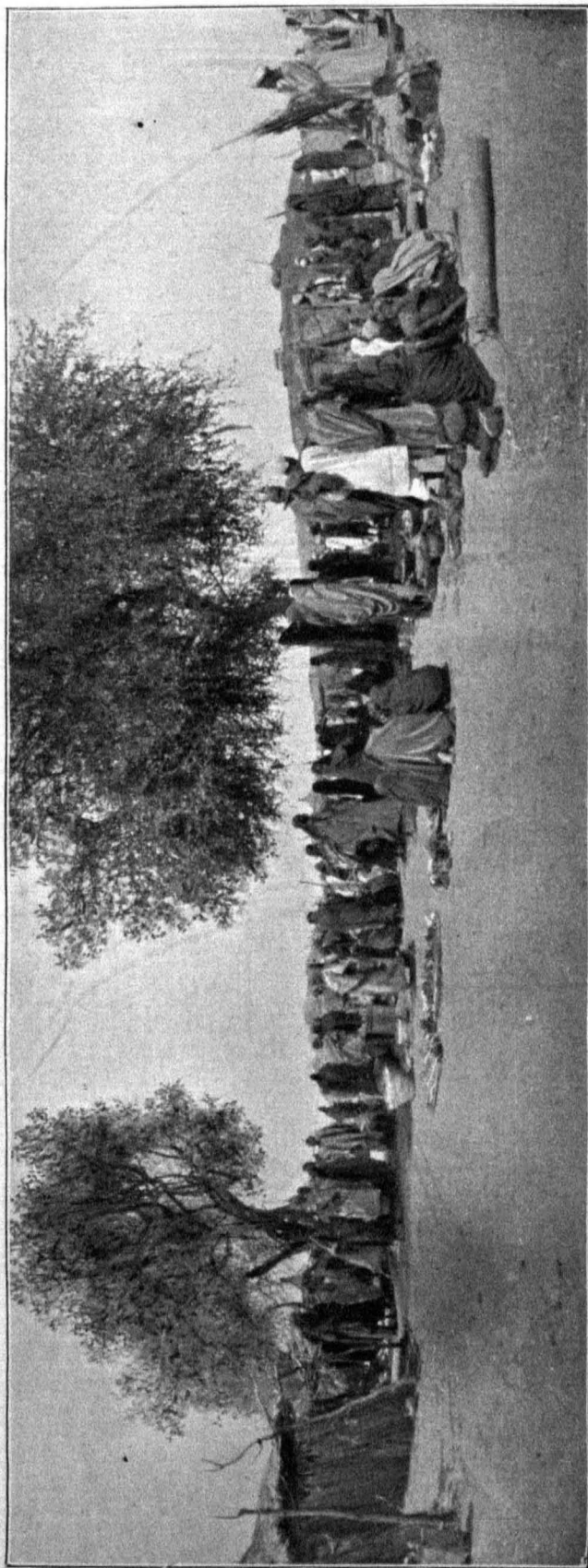
Sugar could also be grown : there was formerly a sugar factory at Kamlin.

The fertility of the land in the Sudan varies enormously, from the sterile desert wastes of Northern Kordofan and the Eastern Sudan to the rich soil bordering the river banks. There are also large tracts of fertile soil round Gedaref, Kassala and Tokar, where rich crops are grown with little effort.

Land and  
settlement.

Inducements are, according to circumstances, held out by the Government to would-be settlers in the shape of free or easy grants of lands, remission of taxes for a time, low rates of transport, etc., and purchasers and cultivators are slowly trickling in. The settlement, especially in view of the dearth of native population and labour, must necessarily be a slow one. As larger tracts are brought into cultivation, as canals are dug, and as irrigation and communications are improved, so will the export of cereals and produce of all sorts increase. The Nile-Red Sea Railway is expected to give Sudan trade a great impetus, and the population is rapidly increasing. But although those best qualified to judge are convinced of a great economic future before the country, it can hardly be expected that the Sudan will pay its own way for some years to come.





MARKET SCENE—GEZIRA.

The following is a list of the chief articles of produce of the Sudan, with the districts where such are mostly found :— Produce and Industries.

Cotton	..	..	..	..	Throughout the Sudan in small quantities, but increasing in Dongola, Berber, and Gezira Provinces.
Hides	..	..	..	..	Kordofan and Eastern Desert.
Gum	..	..	..	..	Kordofan, Blue Nile, and Gedaref District.
Ivory	..	..	..	..	Bahr El Ghazal, Kordofan, and Upper Nile Provinces.
India-rubber	..	..	..	..	Bahr El Ghazal and Kordofan.
Feathers	..	..	..	..	Kordofan.
Woods	..	..	..	..	Chiefly up the White and Blue Niles and in the Bahr El Ghazal.
Grain and Cereals	..	..	..	..	Chiefly Dongola, Tokar, Gedaref, the Gezira, Sennar, and Upper Nile Provinces.
Sugar	..	..	..	..	Small quantities in Berber. Increasing.
Dates	..	..	..	..	Dongola. Best quality at Sukkot.
Gold	..	..	..	..	Indications in Northern Sudan and Upper Blue Nile.
Copper	..	..	..	..	Hofrat Nahas-Bahr El Ghazal.
Iron	..	..	..	..	Bahr El Ghazal and Kordofan.
Other Minerals	..	..	..	..	Kordofan, Upper Blue Nile and Abyssinian border, Eastern and Northern Sudan.
Mother of Pearl	..	..	..	..	Suakin.

The native industries are, so far, limited in number. Cultivation is the usual occupation of the people. Cotton-cloth weaving, boat-building on the Niles, camel breeding in the northern and western deserts, and iron-smelting in the Bahr El Ghazal practically exhaust the list. Agricultural and industrial shows at the chief towns have, however, been started, and receive considerable support. Minor industries, such as pottery, leather work, improved carpentry, etc., are quickly coming to the fore.

### CUSTOMS DUTIES.

For the purpose of Customs duties, the Sudan is, in the main, considered as forming a part of Egypt. The Government has, however, concluded a Customs Convention with Eritrea,\* and applies practically the same principles to the co-terminous countries of Uganda, the Congo Free State, the French Congo and Abyssinia.

Broadly, goods exported to these countries from the Sudan pay 1 per cent. *ad valorem*, and imports from those countries 5 to 8 per cent.; whilst goods in transit thence receive a drawback equal in amount to the duty paid on entering the country, *i.e.*, they can pass free of duty through the Sudan.\*

### JUSTICE.

The main lines of judicial organisation in the Sudan date from 1899, at which time the whole country was under Egyptian Martial Law.

Under the code of Criminal Procedure of that year the criminal courts are directly under the Governor-General, who, however, has the benefit of the advice of a Legal Secretary. Under "The Civil Justice Ordinance, 1900," the civil courts are subordinated to the Legal Secretary, in his capacity as Acting Judicial Commissioner.

Criminal justice in each province is administered by the Mudir's Court (composed of the Mudir or Governor, or his representative, and two other magistrates), which has general competence; minor District Courts of three officers, with limited competence; and magistrates with powers similar to, but more limited than, those of Indian Magistrates. These magistrates are the members of the Provincial Administrative Staff, who are either picked officers of the army or civilian inspectors, who, unless they have had a legal training, are required to pass an examination in the Codes.

The procedure at the inquiry, and as to arrest, etc., is borrowed from the Indian Code of Criminal Procedure; that at the hearing is that of an Egyptian (or substantially, of a British) court-martial, with which the military officers are familiar.

Sentences passed by the Mudir's Court are submitted to the Governor-General for confirmation. Those of the subordinate courts are either submitted to the Mudir for confirmation, or are open to appeal before him.

The Governor-General has, in all cases, revising powers similar to those of an Indian High Court.

The substantive criminal law is contained in the Sudan Penal Code, which is a copy of the Indian Penal Code, with such modifications as the circumstances of the country appeared to demand.

\* See Appendix A.



The civil courts in each province are those of the Mudir and of the subordinate magistrates. The procedure is borrowed in part from that in Indian provinces which do not possess a High Court, and in part from the Ottoman and African Orders in Council.

The parties appear before the judge, who settles the issues to be tried before trying the case. Every court has power to sit with assessors, who, in commercial cases, are frequently of considerable assistance. Appeals lie to the Mudir, or from the court of the Mudir to that of the Judicial Commissioner.

This system has been somewhat modified by the appointment of four civil judges who are trained lawyers. Wherever there is a civil judge, he has all the powers, civil and criminal, of the Mudir, and ordinarily takes all the civil and the more responsible criminal work of that officer. A civil judge has now sat continuously for the last three years at Khartoum, where all the principal merchants reside. A system of circuits will probably be shortly instituted in the outlying provinces; in the meantime provision is made for civil disputes of special importance or complexity in those provinces by a section which authorises their transfer, by consent of the parties, to the court of the Judicial Commissioner. It is very possible that the latter court may shortly be replaced by a bench of civil judges.

It was not thought advisable to create a body of substantive civil law at a time when all that was known of the customs of the people was that they probably differed from those of any country whose legislation could have been taken as a precedent. Section 3 of the Civil Justice Ordinance provides for the recognition of customary law, so far as applicable and not repugnant to good conscience, in matters of succession, etc.; and Section 4 provides for the administration of "justice, equity, and good conscience," a phrase which has stereotyped custom in large parts of the east, and filled up the interstices with the principles of English Law.

In commercial matters in the Sudan the judges have inclined to interpret it as implying the obligation to recognise the principles of Egyptian Commercial Law in cases in which the law of civilised countries is not in agreement.

The above-mentioned Codes are applied wherever they may be put in force by the Governor-General, and they have been gradually extended to all parts of the Sudan, except the Bahr El Ghazal. In the more backward provinces in the south, where officers are scattered, advantage has to be taken of a provision that they shall be applied with such modifications, not affecting the substance, as the circumstances may require.\*

Mehkema  
Sharia.

There are special courts, Mehkema Sharia, for the trial in accordance with Mohammedan Law, of cases between Mohammedans, involving questions of personal status, such as succession, wills, gifts, marriage, divorce, family relations, and also the constitution of charitable endowments (wakf).

The judges of these courts are Mohammedan Sheikhs, either natives of the Sudan or Egyptians; of whom the latter have obtained their training in the Azhar Mosque at Cairo.

The Mehkema Sharia comprise District Courts, which have jurisdiction over one or more Districts, according to the extent and population of the Districts, Province Courts, which act as courts of appeal from the District Courts and have also an original jurisdiction over the district in which they are situated, and a Supreme Court of Appeal situated at Khartoum, consisting of the Grand Kadi of the Sudan, who acts as President, the Mufti, and two judges of appeal.

Though the majority of the inhabitants of the Sudan are followers of the Maliki School of Mohammedan Law, the courts generally, as in Egypt, adopt the jurisprudence of the Hanafi School.

## LEGISLATION.

Legislation takes the form of Ordinances, issued by proclamation of the Governor-General. In accordance with Article IV of the Agreement of the 19th January, 1899, between the British and Egyptian Government as to the administration of the Sudan, all such ordinances must be forthwith notified to the British Agent-General in Cairo and the President of the Council of Ministers of His Highness the Khedive. All Ordinances are published in the "Sudan Gazette."

## RELIGION.

Except for the negroid tribes the religion of the native population is that of Islam. The black tribes in their own country are all heathen; outside it a good many of their members have embraced Islam.

\* The above observations on Justice are extracted from Lord Cromer's Report, Egypt No. 1 (1904), p. 88.

The Arab population is inclined to be fanatical ; and to enable the Government to keep itself informed of the religious feelings of the people, a consultory board of Ulema (learned men) has been established at Omdurman.

There are two Christian missionary stations amongst the black tribes : one (American Protestant) on the Sobat River, and the other (Austrian Roman Catholic) near Kodok. The latter mission is now establishing another branch in the Bahr El Ghazal.

There are also several missionary schools at Khartoum and Omdurman. A British Protestant Church is about to be built at Khartoum, and there are Roman Catholic, Greek, and Coptic churches in course of construction.

### EDUCATION.

In the Sudan a higher primary school system is gradually being developed. There are four of these schools (Khartoum, Omdurman, Halfa, and Suakin), besides a few Kuttab or village schools, where instruction is given in reading, writing, and arithmetic. Every day shows a greater necessity for a Sudanese class able to read, write, and cipher sufficiently to fill the minor appointments under Government. This class is gradually being constructed, but it takes time, especially as competent teachers are scarce.

All school subjects are taught in Arabic, not English. The latter language is not encouraged, but it can be taught, as a foreign language.

The Gordon College, with an endowment of over £E.100,000, was finished and opened in October, 1903.

At present it contains a Higher Primary School, attended by 150 boys, and a Training College for Schoolmasters and Kadis. Competent Sudanese teachers of the vernacular are now the chief requirement, but this want will be remedied as time goes on.

A separate wing of the building affords room for an institute for bacteriological work,\* and research into the products and diseases of the country.

Another invaluable adjunct to the College is found in some technical workshops generously and completely fitted up by a private benefactor.†

### CLIMATE.

The climate of the Sudan naturally varies over such a huge territory. Roughly speaking, it may be said that from the latitude of about Shendi northwards the climate is dry throughout the year. South of this, the rains in the summer, increasing in intensity towards the south, towards the sea, and towards the Abyssinian hills, cause a damp climate for two or three months, the remaining months being quite dry.

Between Halfa and Dongola there are a few rainy days in the winter, and, very exceptionally, some torrential rains in the summer. At Suakin heavy rains occur at intervals from August to January, with occasional rainfalls during the spring. The Khor Baraka flood may be expected at Tokar about the 15th August, and the Gash flood at Kassala during the first week of July.

The rainy season proper, on the Upper Blue Nile, Atbara, and in Abyssinia commences about the middle or end of May, the rains lasting till the middle of September ; light rains in January and February ; heavy rains sometimes in October and November.

The rainy season at Khartoum and in the "Bayuda desert" lasts nominally from the middle of June to the end of September, but during this period rain rarely falls on more than 15 days. In the Bahr El Ghazal the rains last from April till October, and in Southern Kordofan and Darfur from June to October.

Heavy rains occur in addition in the valley of the Upper White Nile from September to November ; also numerous thunderstorms, especially in the hilly region round Rejaf and the Sudd district to the north of it.

On the Sobat, rains last from May to end of October.

The more unhealthy parts, in each case only during the period immediately succeeding the rains or the Nile flood, are, in the order of the evil, the Bahr El Ghazal, the Upper White Nile, the Upper Blue Nile, Kordofan, Kassala, and Suakin. During the rest of the year the climate is dry and healthy throughout. The temperature is, in the summer, undoubtedly hot, the thermometer having on rare occasions risen to as much as 126° ; but on the other hand, except in the rainy season, the nights are always cool and refreshing.

During the rest of the year, the temperature naturally varies considerably ; but it may be said that the winter is bright and invigorating throughout, and not too hot. There are even unpleasantly cold winds at times.

\* The Laboratory is the generous gift of Mr. Wellcome.

† Sir W. Mather, M.P.



Except during the rainy season, the prevailing winds are, in the valley of the Nile, always from a northerly direction. In other parts, the wind varies according to season, but all get their share of the north wind.

#### METEOROLOGICAL NOTES (KHARTOUM), 1902 and 1903.

Month.		Temperature, Fahrenheit.										Prevailing wind.		Rain, inches.*	
		Maximum.				Minimum.				Mean.					
		Highest.		Lowest.		Highest.		Lowest.							
		1902.	1903.	1902.	1903.	1902.	1903.	1902.	1903.	1902.	1903.	1902.	1903.	1902.	1903.
January ...		97.7	91.4	70.7	68.9	68.9	62.6	48.2	42.8	61.2	65.5	N.	N.	—	—
February ...		105.8	100.4	88.7	71.6	74.3	64.4	59.0	48.2	70.8	67.1	N.E.	N.	—	—
March ...		107.6	104.0	88.7	81.5	79.7	68.9	57.2	55.4	84.2	74.3	N.	N.	—	—
April ...		110.3	113.0	98.6	96.8	82.4	79.7	65.3	61.7	78.8	86.4	N.	N.	—	—
May ...		113.9	109.4	102.2	104.0	85.1	82.4	73.4	65.3	93.0	90.0	N.W.	S.	—	1.0
June ...		113.0	112.1	99.5	103.1	86.0	82.4	72.5	68.9	96.5	91.4	W.	S.	—	.7
July ...		106.7	105.8	86.0	87.8	80.6	81.5	66.2	71.6	83.0	77.9	S.	S.	4.962	.5
August ...		108.5	104.9	92.3	90.5	81.5	83.3	69.8	64.4	87.5	87.8	S.	S.S.W.	.197	.6
September ...		108.5	105.8	96.8	96.8	80.6	78.8	69.8	60.8	85.0	86.1	S.	S.S.W.	.070	—
October ...		106.7	106.7	97.7	95.0	83.3	78.8	61.7	67.1	88.9	86.9	N.	N.	.320	—
November ...		104.9	105.8	89.6	93.2	80.6	78.8	54.5	64.4	81.7	85.5	N.E.	N.N.E.	—	—
December ...		91.4	101.3	77.0	86.9	69.8	69.8	49.1	56.3	74.7	78.6	N.	N.N.E.	—	—

#### GAME.

The efforts of the Government are directed towards preserving the numerous species of game of all sorts which abound in the Sudan, and to preventing them being exploited wholesale for commercial purposes.

Thus the Government, in the matter of ivory and feathers, has laid down stringent regulations which control the killing of elephants and ostriches. By imposing heavy duties and strictly limiting the numbers it is keeping within reasonable limits the export of live animals for menageries, etc., in Europe; and traffic in skins, trophies, etc., of wild animals is strictly prohibited.

As regards the shooting of game for sport, a sanctuary and game reserve have been instituted, and the licence with which a sportsman has to provide himself is expensive and only covers the shooting of a limited number of each species, some species being tabooed altogether. (For full details of the Game Laws, *vide* Ordinance for Preservation of Wild Animals, etc., 1903, and for practical hints, etc., *re* shooting, *see* books mentioned on p. 213.)

#### SLAVERY.

Slave-running is practically dead, save perhaps in the remotest parts of the Sudan. The Egyptian Repression of Slavery Department is well represented by a number of posts dotted about in the regions most likely to be favourable to this traffic.

#### FORESTS.

In the Sudan, north of Khartoum, forests are scarce and of little extent. Scattered trees of "Samr" (*Acacia tortilis*) reach right into the desert, while on the occasionally flooded "Karu" land, between the desert and cultivation, is an open growth of the above with "Selem" (*Acacia Ehrenbergii*), "Sayal" (*Acacia spirocarpa*), "Hashab" (*Acacia Verek*), "Tundub" (*Capparis aphylla*), "Marakh" (*Leptadenia Spartium*), etc.

\* The figures for 1904 are :—July ... 1.338  
August ... 2.592  
September ... .787

only. *Vide* "The Rains of the Nile Basin, 1904," by Capt. H. Lyons, Survey Dept., Egypt, just published.

South of Khartoum till about parallel 12° N. the forests consist mostly of belts, usually not of very great width, lining the banks of the rivers and khors. In these belts the most valuable tree is the "Sant" or "Sunt" (*Acacia arabica*), known not only for the strength of its wood, but for the tanning properties of its bark and seed pod, and also for its excellence as fuel, as well as for its value for boat building.

Inland, there are open woods of "Heglig" (*Balanites aegyptiaca*), "Talh," and "Hashab," or dense thickets of "Kittir" (*Acacia mellifera*) and "Laot" (*Acacia nubica*).

It is in this zone that the open woods of "Hashab" (*Acacia vereke*), in Kordofan, are carefully tended and preserved against fire for the sake of their gum which is exported as "Hashab Geneina"; the gum from the unprotected forests fetching a lower price as "Hashab Gezira," or "Gezira," while that from other acacias is known as "Talh," as the Talh tree is the chief producer.

South of 12° N., where the rainfall is more abundant, the forest on the White Nile is, as far as the northern limits of the Sudd, of similar character, only large tracts have been cleared near the river by the Shilluks, and Sant has completely disappeared and is not replaced by trees of equivalent value.

On the Blue Nile the forest changes in character. Not far from the river are numerous gigantic Baobabs ("Tebeldi," *Adansonia digitata*) and "Tarfa" (*Sterculia cinerea*), while the most abundant trees are the graceful "Silag" (*Anogeissus leiocarpus*) and the Sudan ebony ("Babanus," *Dalbergia melanoxylon*).

In these two species, as well as in some others, these forests are like those on the higher lands of the Bahr El Ghazal province and parts of Southern Kordofan. The Bahr El Ghazal forests cover the larger portion of the ironstone deposits in that province, and, as far as quality goes, are probably the finest found in the Sudan, many trees of great height and girth being found there, one of them, the African mahogany ("Homraya," *Khaya senegalensis*), having a beautiful timber, already known to commerce. It is in these forests that rubber-producing lianas are most abundant, the best of them being "Ndala" or "Odilo" (*Landolphia owariensis*), vide Chapter VII.

The forests on the Bahr El Jebel and the woodlands of the Bahr El Ghazal province are more like those on the Upper White Nile, but some other trees appear, and the forests are not only in belts, but cover large areas. Near Mongalla the ironstone appears, and the forests partake of the same character as those of the Upper Bahr El Ghazal.

The forests on the Abyssinian and Eritrean frontiers have not yet been explored by an expert.

All over the Sudan the forests suffer greatly from fires which are set alight by the natives either for purposes of sport, or to clear the paths, or for grazing after the rains. Owing to these fires numbers of trees get killed or mutilated, and it is hopeless to think of developing fine forests until they can be kept under control.

One of the great economic questions of the Sudan, which gives rise to a certain anxiety, is the future supply of fuel. Although the felling of trees is under control, those alongside the river necessarily suffer greatly from the demand for steamer fuel, and there is not an unlimited supply. So far, no coal or petroleum has been found in the Sudan; it is believed that there are beds of lignite in the Dongola Province, but up till now they have not been thoroughly explored. Imported coal now costs from £E.4 to £E.6, and petroleum £E.6, a ton at Khartoum. (Vide also p. 20.)

A certain part of the Sudan—chiefly to the north and north-east and south-east—has been leased to concessionaires for the purpose of prospecting for minerals and exploiting them when found. There are traces of gold and other minerals in most of these areas.

The Sudan is being surveyed (commenced in 1898) on a scale of  $\frac{1}{250,000}$ . So far, over 50 sheets out of 139 projected have been published, and the work of surveying is proceeding steadily. Vide p. 349.

The population is very gradually being trained in sanitary methods, but it is a slow process. Efforts are also being made to stamp out malaria,\* etc., by the latest scientific methods, but the size of most of the malarial districts is vastly in excess of the means so far available to deal with them. At Khartoum and at some of the other chief towns the steps taken have proved most effectual.

\* Vide Report on the Wellcome Research Laboratories—Gordon College—1904.





*By kind permission of*

THE EARL OF CROMER.

*[Ditrich, Cairo.]*



*By kind permission of*

SIR WM GARSTIN.

*[Maull & Fox, London.]*

*(To face page 15.)*

## CHAPTER II.

## THE WHITE NILE.

[The reader who wishes to study in detail the whole question of the Nile Basin, its floods, discharges of rivers, schemes of irrigation, etc., etc., is referred to Sir William Garstin's invaluable "Report on the Basin of the Upper Nile," F.O. Bluebook, Egypt No. 2 (1904). Price 17s.]

## (i.)—INTRODUCTORY.

The White Nile and its tributaries form the life blood of the Sudan. The great river traverses it for 2,029 miles from south to north, receiving on its course through the country the Bahr El Ghazal, the Sobat, the Blue Nile, and the Atbara. General.

Of these four tributaries the Bahr El Ghazal joins the Nile out of the swamps from the west, whilst the other three join it from the east, bringing down the fertilizing matter from the Abyssinian hills.

The rise of the Nile takes place during the summer, but the dates naturally vary largely at different points. Flood.

The causes of the flood are, briefly, as follows :—The rains in southern Abyssinia cause the Sobat to rise about the middle or end of April. The yellowish-white water caused by this flood reaches Kodok the last week in April. The equatorial rains cause the Bahr El Zeraf and White Nile, above the Sobat, to rise about the end of May. The effect of the first rise is felt at Halfa about the 20th May. The Blue Nile begins to rise about this time, and brings the red fertilizing flood down to Khartoum about the 20th June, and to Halfa about the middle of July. The muddy Atbara flood (June to August) rises very rapidly after the Blue Nile, and causes the flood to attain its maximum about the end of August ; at this period the river is muddiest. The White Nile continues to rise slowly, and its effects (clear white water) are felt at Halfa till October, when it falls very slowly. The Blue Nile falls rapidly after the middle of September, and the Atbara has generally disappeared by October. The Sobat begins to fall at Nasser early in December.

The Bahr El Ghazal rivers rise slightly in May. These soon subside, and the main floods take place in July and August.

The above is a description of an average year. An early maximum (*i.e.*, about the middle of August) generally means a low summer flood, and *vice versa*. The flood at its height moves at about 100 miles a day (below the Atbara).\*

The above dates vary largely in accordance with the time and amount of rainfall in the upper valleys of the rivers.

Of the flood water annually brought down by the rivers, about half now runs to waste into the Mediterranean Sea. The Aswan dam regulates and utilizes this to a certain extent, but a large proportion remains over. This it is proposed to utilize in the future for irrigating the Sudan by means of flood and catchment basins ; but the time is still distant when this surplus will be entirely devoted to this purpose.

Up to comparatively recent times the sources of the Nile were involved in mystery.† In ancient days many guesses were hazarded at their origin, some geographers maintaining that the Nile rose in the Atlas Mountains of Morocco ; others were positive that the Niger formed the upper portion of the great river. During the 17th and 18th centuries it was held that the sources were to be found in the "Mountains of the Moon." These have since been speculatively identified with the Ruwenzori Mountains between Lakes Albert and Albert Edward, and, if this theory is correct, the ancient geographers were not so far out. Historical

• It was left for Speke and Grant, in 1862, on a journey from the east coast, to discover that the great lake, now known as the Victoria Nyanza, was the main source of the White Nile. Sir Samuel Baker, in March, 1863, working up stream, discovered the Albert Nyanza ; but it was not till some time afterwards that the actual course of that portion of the river, now known as the Bahr El Jebel, was mapped and traversed, Lieutenants Watson and Chippendall, R.E., being the first, under Gordon in 1874, to lay down the actual course. During the ensuing years, this, the upper portion of the river, was several times blocked with sudd, and at the re-conquest of the Sudan from the Dervishes in 1898, it was permanently blocked. An expedition under Major Peake, however, succeeded in clearing a channel in 1899–1900, and there is no likelihood of the clear channel now existing being, except quite temporarily, blocked again.

\* The flood discharge at Berber is 14,000 metres cube per second.

† For full record of the history of the exploration of the Nile *vide* "The Nile Quest" by Sir H. Johnston.



The sources of the Blue Nile, which for long was considered as the main river, were, as early as 1770, discovered by Bruce to be near Lake Tsana (Abyssinia), but to this day the actual course of the Blue Nile between Lake Tsana and Famaka (Abyssinian-Sudan border) has never been accurately laid down.

The course of the Atbara, as far up as the junction with it of the Setit, was roughly known before 1864, when Sir S. Baker made a more thorough exploration of these rivers, but the courses of the Atbara and Setit lying within the Sudan have only recently been fairly accurately laid down. The Atbara rises in the Abyssinian hills, near Chelga, where it is known as the Goang.

The Sobat was explored by Marno and Junker in the "Seventies" as far as Nasser, where there was then an Egyptian post. It was left for British officers, after 1898, headed by Captain Gamble, to explore the various narrow rivers such as the Baro, Pibor, Akobo, etc., which join the main stream from South-West Abyssinia, east of Nasser. The course of the Upper Pibor was explored by Lieut. Comyn in September, 1904, *vide* p. 151.

The course of the comparatively short Bahr El Ghazal river, known to the slave-traders of old times, was laid down by Petherick, Gessi, etc., in 1864-78; but the courses of the western rivers which flow into it, such as the Bahr El Arab\* or El Homr, have not yet been even roughly determined. Those of the more southerly affluents, such as the Suei or Jur, etc., though not yet accurately fixed, have been sketched in by Junker, Marchand, etc., and the British officers in the Bahr El Ghazal since 1900.

#### (ii.)—GENERAL DESCRIPTION (DOWN STREAM).

Albert  
Nyanza to  
Khartoum,  
Bahr el  
Jebel.

After leaving the Albert Nyanza, the White Nile (or as it is there called the Bahr El Jebel) flows for 110 miles in a deep broad arm, with scarcely any velocity or slope, past Wadelai and Dufile to Nimule, and then, after a short and troubled course, between high mountain ranges, tosses over the Fola Rapids in a channel only 50 yards broad. From here it continues in a torrent to about Rejaf. Here the river is 7 feet deep at low Nile and 15 feet at flood time, discharging between 18,000 to 60,000 cubic feet per second. The regulating effects of the great lakes are well felt here. It is here at its lowest in winter; begins to rise about 15th April, with a minimum about the end of August.

From Rejaf to Bor, 112 miles, the river is mainly in one channel with a rapid fall. From Bor to the junction with Lake No, 384 miles, the river meanders along in numerous marshy channels with a very gentle slope. The main channel always used is known as the Bahr El Jebel. In this reach are the dams of living vegetation, known as the "Sudd" (for description *see* Appendix B). On one stretch the true channel is still blocked with sudd, and a "false" channel, a little to the westwards, has to be used for about 20 miles.

Lake No.

At the junction of the Bahr El Ghazal and the Nile in north lat.  $9^{\circ} 29'$  is Lake No, or Moghren El Buhur,† a shallow expanse of water surrounded on all sides by reedy marsh and varying in size according to season, but in summer probably about 60 square miles. It forms a reservoir for the sluggish streams that drain the extensive plateau forming the water-shed between the Nile and Congo. In summer the lake and its swampy surroundings act as an evaporating basin, and the loss of water is consequently considerable. The waters here also become polluted with decaying green vegetable matter.

The Bahr El Ghazal enters Lake No at its western extremity, and the Bahr El Jebel passes through its eastern end. The Bahr El Ghazal has a feeble discharge and has no effect at any time on the volume of the White Nile.

In the stretch between Lake No and the Sobat, 81 miles, the current is slow and the channel occasionally blocked by sudd.

Sobat.

During flood, the Sobat has a discharge nearly equal to that of the Bahr El Jebel above the junction. In the spring the discharge from the Sobat is feeble, and the river is then unnavigable. The soil brought down by the Sobat is light and friable.

White Nile.

At the Sobat confluence the river changes its name‡ and now becomes the Bahr El Abiad or White Nile.

From this point down to Omdurman, 530 miles, it receives no more perennial affluents, but several large khors join it on the east bank between Kodok and Renk—chief of which are Khor Adar and Khor Rau.

The White Nile flows sluggishly along with a low velocity and gentle slope; its course is generally straight and its section wide and shallow, banks low, supply very constant; the colour and limpidity of its water show very little change throughout the year, and the variations between the level of high and low supply are very small, being not more than 2 to 6 feet. The depth of the river in this stretch ranges from 15 feet at low Nile to 21 feet in flood. In parts, the channel in flood time is often of immense width.

The result of 94 measurements made in June, 1862, show the mean width of the river in flood to be 1,870 yards. In many places, however, the channel is more than 2 miles wide, and in its general appearance it resembles a lake rather

\* An endeavour is to be made during the winter of 1904-5 to explore the Bahr El Arab from its mouth.

† *I.e.*, Meeting of the Rivers.

‡ According to some the change takes place at Lake No.

than a river. Its banks, more particularly the western shore, are very low, and its waters in flood spread for several miles over them. Their average height is not more than 8 to 10 feet above low water level, and the maximum difference between high and low supply is not more than 6 feet.

The river is at its lowest by the beginning or middle of April; the rainfall in the south then causes a constant and gradual rise, but the flood does not reach its maximum before the beginning of September.

The velocity of the current when in full flood is not more than  $2\frac{1}{2}$  to 3 miles an hour, whilst in winter this is reduced to  $1\frac{1}{2}$  miles an hour. The water is of an olive green or yellowish brown tinge. It owes most of its colour to the creamy-white waters of the Sobat River, called by the Arabs the Bahr El Asfar, or Yellow River.

An odd phenomenon, the source of which has not been satisfactorily explained, is the "green water," which makes its appearance at Dueim about the middle of May. The colour is owing to the mass of minute algæ in the water, which subsequently putrify and stink, but the origin of the water has not been definitely traced. It is believed to come from the upper Sobat, or Bahr El Ghazal, and not from the Bahr El Jebel. This green water reaches Cairo towards the end of June. Green water.

At Omdurman, half Nile usually occurs about the middle of July, high Nile at end of August or beginning of September, lasting about a month; half Nile end of November, lowest Nile end of April. The Blue Nile is at its lowest in May, and highest about the end of August. The result of careful measurements during the last 3 years has been to prove that when the Blue Nile is in flood, and generally when its discharge exceeds 5,000 metres cube per second, its waters hold back those of the White Nile and, owing to the increased depth in this river, due to the rise in the water levels, the volume coming from the south floods the Sudd marshes right and left of the channel and thus reduces the discharge of the White Nile by about 50 per cent. Junction the Niles Khartoum

The average difference between low and high Nile here is 22 feet ( $17\frac{1}{2}$  to 26 feet).

The river below Khartoum flows steadily along till it reaches the 6th or Shabluka cataract (*see* p. 47). Below this it is not disturbed, except for the rapids of the so-called 5th or El Homar and Bagara cataracts, till it passes Abu Hamed and enters the 4th or Belal cataract some way below this point. This cataract, forming the most complicated and dangerous rapids on the Nile, is for ordinary purposes unnavigable (*see* p. 36). Below it there is an open stretch past Dongola to the 3rd or Hannek cataract, shortly followed by the Kajbar rapids (*see* p. 26). A rocky channel full of small islands and small rapids, increasing in size and importance as the river proceeds, is entered some 80 miles below Kajbar, and through the Batn El Hagar the river rumbles along till, after passing the 2nd or Amka cataract, it emerges past Halfa in a broad and steady stream which lasts till it arrives at the dam and 1st cataract (Shellal) of Aswan. From here onwards there are no further obstacles (except sand-banks and canals) till, *via* the Delta of Egypt, the Mediterranean Sea is gained. Below Khartoum

### (iii.)—RIVER DISCHARGES.

The following, taken from Sir W. Garstin's Report above mentioned, gives a summary of results respecting discharges in the basin of the Upper Nile:—

#### 1. THE VICTORIA NILE.

The discharge at the Ripon Falls varies between 500 and 650 metres cube per second with a range of 1·1 metres. Downstream of the Murchison Falls the range is probably 1 metre, and the maximum and minimum discharges 1,000 and 400 metres cube per second respectively. The increase in flood is due to the rainfall throughout the catchment area of the river between these two points, while the decrease during the low season is due to the Choga Lake, which undoubtedly has a regulating effect upon the supply issuing from Lake Victoria. Lastly, the volume which enters Lake Albert by this river is generally, in flood, greater than that which leaves it by the Bahr El Jebel.

#### 2. THE BAHR EL JEBEL.

At Wadelai, the first discharge site, the range of the river is about 1·11 metres while the discharge varies from 550 to 950 metres cube per second. The increase brought in by the streams which feed this river between Lake Albert and Wadelai is compensated by the loss of water due to a portion of the discharge of the Victoria Nile passing south up the lake during the flood season.

At Lado, 381 kilometres, the range is 2·30 metres, and the discharge in summer averages from 600 to 700 metres cube per second. The maximum (generally attained in September) varies between 1,000 metres cube per second in a low flood, and 2,000 metres cube per second in a high one. This increase in the flood supply is due to the rainfall throughout the river valley, and to the volume added by the many important tributaries, such as the Asua, the Kit, etc., which feed the Bahr El Jebel between Wadelai and Lado.



At Bor, 559 kilometres, the loss of water in flood is some 50 per cent. of the amount passing Lado, and the discharge here can rarely, if ever, exceed 1,000 metres cube per second. This loss is due to the filling up of the entire river valley, which thus forms an immense basin or reservoir, and reduces the discharge passing to the north. This reservoir extends from Lado to the head of the Bahr El Zeraf, a distance of some 378 kilometres. As the river falls the water of this basin, with the exception of the large amount lost by evaporation, slowly filters back through the marshes into the river during the winter months, and thus maintains the constancy of supply.

Throughout the "Sudd" region the loss of water in the Bahr El Jebel, both in summer and in flood, is very considerable. By the time that Lake No (1,156 kilometres from Lake Albert, and 749 kilometres from Lado) is reached, 85 per cent. of the discharge at Lado has been lost in a high flood, and 70 per cent. in a low one. During the summer months the loss at this point varies between 50 and 60 per cent. Lastly, the discharge which enters the White Nile from the Bahr El Jebel is nearly constant at all seasons of the year, and never even in the highest flood exceeds 300 or 320 metres cube per second. The regulating effect of the great marshes is thus very apparent.

### 3. THE BAHR EL GHAZAL.

The discharge of this river, as a feeder of the White Nile, may be neglected entirely. Its summer volume entering Lake No varies from 20 to 30 metres cube per second, while its flood discharge is even less, equalling from 12 to 20 metres cube per second. None of this water enters the White Nile, merely increasing the flooded area of Lake No. It, however, helps to augment the reservoir area of the main stream.

### 4. THE BAHR EL ZERAF.

This branch of the Bahr El Jebel adds to the volume of the White Nile by an amount varying from 30 to 60 metres cube per second in summer, and from 80 to 160 metres cube per second when in flood. If, however, the Bahr El Jebel is closed by "Sudd" then the discharge of the Bahr El Zeraf increases, possibly to from 300 to 400 metres cube per second during the flood season.

### 5. THE SOBAT.

This river is the main supply of the White Nile during the period of flood. The first effects of its waters are felt in May and June, while, as it does not reach its maximum until October and November, the volume of the Blue Nile having then been largely reduced, it maintains the discharge passing Khartoum to a very considerable figure. In years of good flood the discharge of the Sobat varies from 900 to 1,000 metres cube per second. In the early months of the year its discharge shrinks to very low limits, its waters being held back by those of the White Nile. When in flood the reverse is the case. The volume of the Sobat being at that time more than double that of the White Nile causes a rise in the levels of the latter upstream of the junction and holds back its water as far as Lake No.

### 6. THE WHITE NILE.

The discharge of this river below the Bahr El Zeraf junction varies from 300 to 500 metres cube per second according to the season of the year and the nature of the flood. It is probable that the last figure is a maximum and is never surpassed.\* At El Dueim, 637 kilometres below the Sobat junction, the summer supply varies between 350 and 500 metres cube per second. The minimum levels are generally attained in the month of April and the first half of May. The discharge, owing to the Sobat water, gradually increases until the Blue Nile flood exceeds the volume of 5,000 metres cube per second at Khartoum. As soon as this figure is passed the discharge of the White Nile is reduced by an amount varying from 30 to 60 per cent., and this holding back continues until the Blue Nile falls again below the figure above given. This reduction of the White Nile discharge takes place in the months of August and September. As soon as the Blue Nile discharge has fallen below 5,000 metres cube per second that of the White Nile rises very rapidly, attaining its maximum in the months of November and December, when as much as from 1,500 to 1,700 metres cube per second have been recorded. This increased discharge is, of course, partly due to the Sobat, but also to the draining off of the water which has been ponded up for so long a period. It seems safe to assume that the White Nile discharge at Khartoum never under any circumstances exceeds 1,800 cubic metres per second.

To sum up :—The White Nile is at its lowest from March to May. It rises in June, is checked again in August and September, and attains its maximum during the months of November and December. Its limits in a low year

\* The dates of its maximum levels upstream of the Sobat coincide with those of the Bahr El Jebel.

are from 300 to 1,500 metres cube per second, and in one of high flood from 400 or 500 to 1,700 metres cube per second.\*

#### 7. THE BLUE NILE.

The supply of this river is chiefly derived from the drainage of the basin through which it runs and from the large tributaries which enter it downstream of the point where it issues from the Abyssinian hills. The Tsana lake has but a small influence upon its supply at any period of the year. It is at its lowest in May, when its discharge at times shrinks to nothing. It begins to rise in June and attains its maximum about the end of August. Its discharge in a year of good flood is as much as 10,000 metres cube per second, and it seems probable that in a year of exceptional flood 12,000 metres cube may pass Khartoum. In September it falls very rapidly, and during the winter months rarely discharges more than from 200 to 400 metres cube per second. The Khartoum gauges prove that a higher reading is recorded for a given flood discharge when the river is falling than is the case when the river is rising. This is probably due to the filling of the valley between Khartoum and the Shabluka Pass.

#### 8. THE ATBARA.

The first water from this river reaches the Nile in the last week of June, and the maximum is usually reached in the last days of August, or in the first week of September. The Atbara generally attains its maximum before the full flood from Khartoum has arrived at the junction of the two rivers. After the maximum has been reached, the fall of the Atbara is rapid, and by the end of the year the river reverts to its summer state of a series of pools. The maximum discharge of the Atbara, measured in 1903, was 3,088 metres cube per second, but this is probably surpassed in a year of very high flood.

#### 9. THE NILE NORTH OF KHARTOUM.

The discharges of 1903 record a maximum of 10,500 metres cube per second in an average year. If to this be added the volume of the Atbara, a total of nearly 14,000 cubic metres per second is reached. As in 1903 the levels at both Halfa and at Cairo did not pass those of a very ordinary flood supply, it would seem probable that in very high flood a volume of quite 16,000 metres cube per second must pass Berber.

In conclusion it may be stated with confidence that the White Nile contributes practically nothing to the flood which reaches Egypt. This is entirely derived from the Blue Nile and from the Atbara. On the other hand, the supply passing Aswan during the spring and early summer is due, almost entirely, to the water of the great lakes brought down by the White Nile.

The following are the water-slopes of the two rivers, as worked out from the discharges:—

##### Bahr El Jebel—

At Wadelai..	..	..	..	..	$\frac{1}{27000}$	dry season.
At Bor ..	..	..	..	..	$\frac{1}{12100}$	flood season.
At 830 kilometres from Lake Albert ..	..	..	..	..	$\frac{1}{22500}$	flood season.
At Hellet-el-Nuer ..	..	..	..	..	$\frac{1}{40000}$	flood season.
At " " ..	..	..	..	..	$\frac{1}{16500}$	dry season.
At Lake No ..	..	..	..	..	$\frac{1}{87500}$	flood season.
At " " ..	..	..	..	..	$\frac{1}{54000}$	dry season.

##### White Nile—

Above Sobat ..	..	..	..	..	$\frac{1}{20000}$	dry season.
At Dueim ..	..	..	..	..	$\frac{1}{100000}$	when Blue Nile has fallen and the White Nile is at its maximum.

At Dueim ..	..	..	..	..	$\frac{1}{50000}$	dry season.
-------------	----	----	----	----	-------------------	-------------

##### Blue Nile

At Khartoum ..	..	..	..	..	$\frac{1}{11200}$	flood season.
----------------	----	----	----	----	-------------------	---------------

(See also footnote on p. 111, giving a short table of comparative discharges.)

#### (iv.)—NAVIGABILITY (UP STREAM).

Between Halfa and Khartoum (880 miles) the river may be said to be navigable throughout at high Nile.

Details are given below as to the various cataracts to be encountered, but it may be broadly said that, although difficult, it is not impossible to get boats and steamers through in the time of the flood. At low Nile most, if not all, of the cataracts are unnavigable.

\* The maximum is never reached until the late autumn, when the Blue Nile flood has passed away.



Before the Nile Expedition of 1884–85 steamers and boats were taken over the 2nd cataract. During the expedition both were taken over the 3rd cataract and intervening rapids, and boats (whalers) successfully surmounted the 4th cataract. In 1897 gunboats and other steamers were hauled over the latter place, and the rocks of the 5th and 6th cataracts have never, when there was enough water, offered serious resistance to the passage of boats or steamers.

From Khartoum to Gondokoro, practically 1,100 miles, the only obstacles to navigation at any time of the year are :—

1. The Abu Zeid Ford (occasionally only), and the Azalet or Dankul Rocks near Jebelein, *vide* p. 59.
2. Scarcity of fuel.
3. The sudd.
4. Sand-banks.

2. FUEL.—One of the great economic questions of the Sudan which would give rise to anxiety were not the Nile-Red Sea Railway already in course of construction is the future supply of fuel. Imported coal now costs £E.4 to £E6. per ton, and petroleum £6 to £E.11.500 per ton at Khartoum. Though a bed of lignitic coal has been discovered at Dongola, no other coal, nor even lignite, has so far been located within our boundaries. Wood therefore, is and will for some time remain the chief source of fuel supply. The large demand which arose with the development of Khartoum has caused the destruction of forest belts along the White and Blue Niles to a considerable distance from Khartoum, and although the Forest Department has now control of the fellings, the enormous demand is making inroads into the forests from which subsequent fires preclude recovery.

Wood stations for steamers are established at different points along the banks, at distances usually sufficiently near to obviate steamers taking too heavy a load, but there is a long gap between Khor Attar wood station and Kanisa (about 380 miles), which necessitates steamers carrying a large amount of firewood to enable them to cross the sudd region. As there is a heavy tax on the forests at these wood stations, the fellings are getting farther and farther away from the bank, and tramways are necessary to work the more remote portions of the forest.

3. THE SUDD.—A full description of the formation of and methods of dealing with the sudd are given in Appendix B. The Nile was blocked by the sudd from 1870–4, 1878–81, in 1884, and from 1895 to 1900.

The Nile, before it flows into Lake No, appears to be a channel varying from 100 yards to a mile in width, but, from the masthead of a steamer, it would be seen that there is a sea of papyrus grass, bulrushes, and reeds on either side of this water channel, and that the real banks of the river are 4, 8, or even 12 miles distant on either side. Under all this vegetation is water, which is slowly making its way down to fill up the void caused by the absorption of the water by plants and sun. The matted vegetation which floats on the top of the water is so thick that it is possible to walk on it; and, were it not for this covering, the evaporation over such a vast area would greatly diminish the supply of water to Lower Egypt.

A considerable part of the Nuer tribe actually live on the floating mass of vegetation, fish and the stalks of a water-lily forming their only food. The surface of the water is covered by a dense tangled mass of papyrus, ambach, and other water plants, which in places grow to a height of from 15 to 30 feet.

At the rise and fall of the Nile, quantities of the grass get torn away and float down stream. If the season is unusually wet, the stream increases in bulk and rapidity, and innumerable large masses of the grass, hurried and packed by the wind, are sent floating down; these jamb in the channels and form the sudd blocks.

The channel of the river is very tortuous; at Lake No, for instance, where the Bahr El Ghazal flows into the Nile, there is a sharp turn to the east. If the water contributed simultaneously by the Bahr El Ghazal happens to be insignificant and incapable of sweeping away the floating masses, a block is the result at this point.

4. SANDBANKS.—They are not as a rule any considerable obstacle, but are, of course, more troublesome at low than at high Nile, and shift about every year.

Steamers with no encumbrances, and with fuel ready cut for them to pick up, take about 12 days up stream from Khartoum to Gondokoro, and about 8 days down stream. (Record journey in 1903: 11 days up and 7 down).

The navigation up to the mouth of the Sobat is at all times easy, the Abu Zeid Ford and occasional rocks and sandbanks forming the only difficulties. The deepest channels lie usually towards the east bank. From the Sobat to Gondokoro a perfect and recent knowledge of the route is required, in order not to deviate into any of the lateral branches which are frequently met with, and which, varying from year to year, are chiefly in evidence during and after the rainy season.

There are also many sandbanks on this stretch. Between Gondokoro and Rejaf the river is rather difficult when low on account of shifting sandbanks and islands. There are a few rocks, but not dangerous, except at one point.

Between Rejaf and Bedden there is the same difficulty of shifting sandbanks and sunken rocks, which are, however, isolated and few in number, and might be blasted away. The current here is about  $1\frac{1}{2}$  miles an hour. At Bedden there is a bad rapid necessitating a transhipment; but from there boats can go to Kiri.

From Kiri to Labore there are awkward rapids, but the river might be utilised to a great extent. The river con-



IMP000035811ENG



tinues of much the same character till the junction of the Asua, when the rapids become more serious, terminating in the Fola Rapids.

The last 15 miles before reaching Nimule are quite impassable to any steamers or boats.

From here on, the river is free of any obstacles up to Lake Albert.

Between Dufile and Lake Albert the Nile is very sluggish, and papyrus islands abound in it. Breadth of channel varies.

#### BOATS AND STEAMERS.

The usual Nile boats are the "Nugger" and "Gayassa," varying in capacity from 5 to 400 ardebs. The latter solidly built, with high bows, and free board, and lateen-rigged, is the Egyptian boat, whilst the former, which is found from the 2nd cataract southward, is flat, with low free board, and is roughly though solidly built without ribs. Rafts, canoes, inflated waterskins and water-tight pots are also used for individual navigation. Further up stream "dugouts" and ambach canoes are seen. Of steamers there are 10 gunboats, 21 other steamers, and 6 launches on the river, mostly stern-wheel; a few are screw, and one or two paddle. (*Vide* Chap. X, Part I.)

#### LANDING PLACES.

From Halfa to Khartoum and from Khartoum up to Goz Abu Guma it is possible to land almost anywhere on either bank. From there up to Kodok, owing to the broad reed fringe on either bank, landing is difficult except at the following places, viz.:—Jebelein, Um Ashrin, Karshawal, Renk, Meshra Leungtom or Domaia, Meshra Zeraf, Meshra Rom, Kaka, Kaka Wood Station, Melut and Demtemma. All these, except Kaka and Um Ashrin, are on the right bank.

As Gordon states, in the stretch between Kodok and 100 miles north of it, "People do land, but it is over your knees in the rainy season," and even if a landing is effected, progress inland is always liable to be arrested by wide and deep khors which are really branches or overspills from the main stream: these obstacles are encountered even in the dry season.

There are easy landing places in many spots between Kodok and Lake No, then nothing except Hellet Nuer, Shambe, Abu Kuka, and Kanisa for 360 miles till Bor; south of Bor the best known ones are at Kiro, Lado, Mongalla, Gondokoro and Rejaf, though elsewhere a landing can generally be effected, especially on the left bank of the western channel, which leaves the main river near N. Lat.  $5^{\circ} 30'$ . Above Rejaf one can land anywhere up to the Fola Rapids. Between Dufile and Magunga (on Lake Albert) there are five landing places.

#### (v.)—CLIMATE.

The rains on the Upper Nile in the equatorial regions from the Albert Nyanza to the Bahr El Ghazal last from February or March to October or the middle of November.

As one proceeds northwards the heavy rains come later; the "Kherif," or rainy season, in the neighbourhood of Kodok, lasts, as a rule, from the middle of May to the end of October, whilst at Khartoum it may be said to be during July, August, and September. At Halfa there is no rainy season.

At Gondokoro the hot weather commences middle of November and lasts till the end of March.

Colonel Stewart states (1883):—"The rains are very heavy, lasting 10 to 12 hours at a time. From Gondokoro south to the Equator, rainy seasons increase in length, till on the Equator it may be said that rain and sunshine succeed each other in rapid succession all the year round."

Heavy thunderstorms and rains occur at intervals during the rest of the year, especially from October to January in the hilly regions round Rejaf and the Sudd district to the north of it.

#### WINDS.

During late autumn winds are very variable, blowing from all points of the compass. East and south-east winds at this period predominate, especially in the upper reaches. During the rest of the year the north wind, varying from north-west to north-east, is fairly constant, except during the summer rains, when the wind shifts to the south and south-east.

#### TEMPERATURE.

The average maximum and minimum shade temperatures on the Upper Nile during the hot months are  $99^{\circ}$  and  $85^{\circ}$  respectively, and during the rest of the year  $88^{\circ}$  and  $74^{\circ}$ . Between Khartoum and Halfa the maximum average is a good deal higher, and the minimum rather lower.

In the Sudd region and south the maximum averages about  $85^{\circ}$ , but, owing to the dampness of the district, from April to December fevers are rife, and the heat and mosquitos are difficult to bear with equanimity.



(vi.)—DETAILED DESCRIPTION OF THE NILE FROM THE NORTHERN BOUNDARY OF THE SUDAN TO GONDOKORO.

SECTION 1.—HALFA TO MEROWE.

The northern boundary of the Sudan (and of the Halfa Province), though nominally the 22nd parallel of north latitude, begins for administrative purposes on the Nile at Faras Island, 12 miles north of the point where that parallel crosses the river and 20 miles north of Halfa. Opposite Halfa the river is some 900 yards broad, and is navigable up to the foot of the 2nd cataract,  $26\frac{1}{2}$  miles up stream.

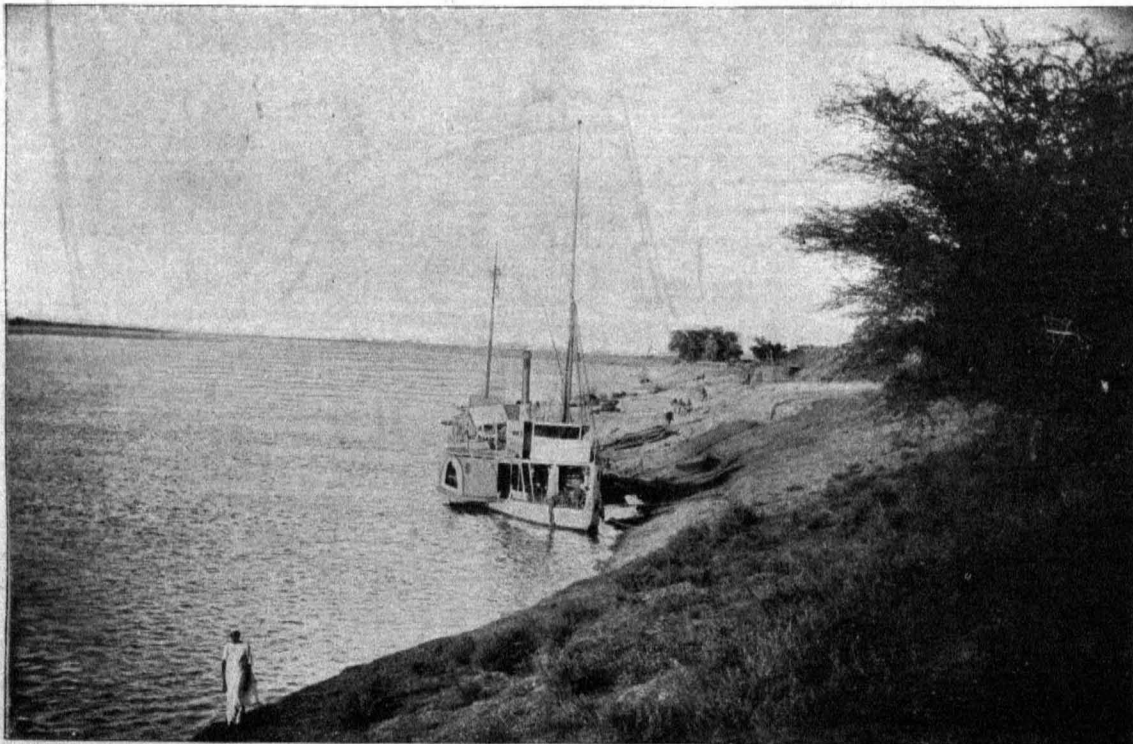
Beyond the 2nd cataract the river runs through the broken rocky country of Batn El Hagar, and is full of rocks and rapids which require careful steering, even for small boats at high Nile, up to the Amara rapid. Beyond this the river is fairly easy till the 3rd or Kajbar Cataract is approached. At this point the Nile again works its way through broken hilly ground covered with boulders, and from thence it is plain boating, except for sandbanks, till Merowe.

A road, or rather a fair camel track—total 228 miles from Halfa to opposite Dongola—runs along the right bank of the river, taking short cuts across bends (notably for 35 miles across the desert between Kosha and Abu Sari) all the way, but has naturally been considerably superseded by the railway. On the left bank there is also a through camel track, but it keeps further from the river and is less used than that on the other bank. (For detail, *vide* I.D.W.O. map No. 1489, sheets Wadi Halfa, Kosha, Dongola, Debba, and Merowe.)

The railway (3 feet 6 inches gauge) extending from Halfa to Kerma (203 miles) was started in Ismail Pasha's time (1877), carried on nearly to Akasha in 1884-5, almost entirely destroyed by the Dervishes (1885-96) and rebuilt to provide means of transport for the Dongola Expedition in 1896. Of necessity it was rapidly and lightly laid, and it is now (1904) in a bad state of repair. Owing to the great cost which would be involved in its complete repair, it is to be abandoned (*see* Chapter X, Section I).

(For administrative and economical details of the Halfa and Dongola Provinces, *vide* Chapters III and IX.)

N.B.—In the river table, in order to avoid fractions, as a rule only the nearest mile or kilometre is given. Kilometres, where given, are in italics : 5 miles = 8 kilometres.



From Photo by]

THE EASTERN NILE BANK, SOUTH OF HALFA.

[M. Venieris.

Place.	Miles. Kilometres.		Left (West) Bank.	River and General.	Right (East) Bank.
	Inter- mediate.	From Halfa Camp.			
Faras Island...	...	20 32	Bare, except for a few huts and patches of cultivation. Sandy and rocky, sloping to the river	Northern point of the Sudan Administration on river. River some 800 yards in width, current $1\frac{1}{2}$ miles per hour at low Nile to 3 miles per hour at high Nile	Cultivated in general. Palm trees. Sandy. Banks 20 feet at low Nile, 4 feet at high.
Jebel Sahaba	12	8	...	The 22nd parallel crosses the river at this point ...	Jebel Sahaba, hill on R. bank.
Dabarosa	5	3	...	Fertile island.	
Halfa	$1\frac{1}{2}$	$1\frac{1}{2}$	...	Difficult approach to right bank at low Nile. Numerous sandbanks appear, varying from year to year on this stretch	A commercial town of about 2,500 inhabitants, of which about 200 are Greeks. ( <i>See</i> Chapter III, page 85.) Landing place for goods and passengers. Headquarters of Halfa Province. Terminus of S.G.R.
Halfa Camp (802 miles by river from Cairo)	$1\frac{1}{2}$	0	Nearly opposite Halfa is the Quarantine Camp, on a sandy slope	The best description of the river between the 2nd and 3rd cataracts (including both) is by Commander Hammill, R.N., whose report (1884) is to be found in H.S.C., Vol. I., Appendix O	Headquarters of the Sudan Railway. Landing place close to officers' mess. Bank 10 to 30 feet above river (226 miles from Shellal).
Khor Musa	5	5	The bank generally gets more rocky and broken	Some additional matter, with large-scale (but inaccurate) map of the different rapids, is given in O.G.H., pp. 9-25	Fort now in ruins. Action v. Dervishes 1888. Bank broken and rocky. Huge boulders.
Foot of 2nd cataract (Shellal el Amka)	$1\frac{1}{2}$	$6\frac{1}{2}$ $10\frac{1}{2}$	...	The cataract, $8\frac{1}{2}$ miles in length, is impassable for steamers and nearly so for any but small boats at low Nile, and only navigable with difficulty at high Nile. At high Nile it is a rumbling mass of rapids, whilst at low Nile it is a broken expanse of black rock, with shallow channels finding their way between. The Batn El Hagar (Belly of rocks) is now entered. <i>See</i> Hammill's report for detail.	
Abu Sir	$\frac{1}{2}$	7	High cliff. Fine view of cataract	The banks of the river between this point and Ginnis, where the Batu El Hagar is quitted, differ remarkably in their characteristics. The left or western bank usually presents a steep slope of loose golden sand, driven by the prevailing winds from the great Libyan Desert, varied by black crags jutting out of it and low rocky hills, while the right or eastern bank is generally rocky, free from sand, and in some places almost precipitous.	
Matuka	3	10 16	Ancient Egyptian fortress of Matuka (XIIth Dynasty). Small temple to S.E. ( <i>see</i> Murray, page 982).		



Place.	Miles. Kilometres.		Left (West) Bank.	River and General.	Right (East) Bank.
	Inter- mediate.	From Halfa Camp.			
Head of 2nd cataract	3	13 21	... ..	Between the head of the 2nd cataract and the foot of the Semna Rapid the Nile runs through a sterile and uninviting country, the eastern side covered with masses of black rocks, the western with mountains of yellow sand. The navigation is described as "difficult, dangerous, and tedious."	
Gemai ... ..	2	15	... ..	... ..	Used in 1884-5 as head of railway, portage for boats, &c.
Murshid ... ..	10	25	... ..	... ..	Advanced post and fort of the Frontier force 1886 to 1896.
Sarras ... ..	8	33 53	... ..	... ..	
Ruin ... ..	1	34	Ancient Egyptian fort ... ..	... ..	Railway here leaves the river bank and enters the rocky desert to the East.
Melik ... ..	6	40 64	... ..	Melik Island ; ancient temple of Sikator I.	
Semna Rapid ... ..	3	43	Semna Temple on height about 300 feet above river. Jebel Barga just behind	Here a narrow ridge of gneiss forms an awkward barrier. At high Nile the river sweeps over it without perceptible diminution of width (430 yards), but at low Nile the rocks are bare save for a narrow channel, 45 yards broad and 65 feet deep, formed by erosion. (Gregory.)	Kumna Temple on height about 400 feet above river.
Atiri Rapid ... ..	7	50 80	... ..	The obstructions to navigation consist of 2 "gates" about $1\frac{1}{2}$ miles apart ; of these the lower gate presents no difficulty. It is about 300 yards long, and steamers are able to steam up through it at "half Nile" without unloading. The upper "gate" is more troublesome to pass, the channel being obstructed by a great barrier of rocks which stretch quite 200 yards across the river, leaving at "low Nile" only a narrow gap towards the western bank. At "high Nile" another channel exists near the opposite bank. Not serious.	
Ambugol Rapid ... ..	7	57	... ..	One mile long ; channel near right bank. Fall 3 feet. Not difficult.	
Tanjur Rapid ... ..	15	72 116	Bank low and even, desert sand up to river	Extends for about 3 miles. Awkward cross currents at foot. Western channel best. "Gates" at either end straight and clear, but considerable rush of water. Difficult rapid altogether	Bank high and precipitous, much broken up.
Jebel Alimula ... ..	2	74	... ..	... ..	Road passes to west of J. Alimula and by a precipitous track cutting off bend to Sonki.
Sonki... ..	3	77	... ..	... ..	Range of hills recedes from river bank low and even.
Omka... ..	2	79	Bank low and fairly level ... ..	Slight rapid, not serious ... ..	
Hammam ... ..	5	84 135	Hot spring (sulphur) for rheumatism, etc.	... ..	

Akasha	...	1	85 137	...	...	...	...	...	Easy rapid. Ridge of rocks extends across river. Western channel best	At the village of this name the railway touches the river for the first time since Sarras. Macdonald's advanced brigade occupied this, April, 1896. Headquarters of District and residence of Mamur.
Kulba	...	8	93 150	Late boundary (1903) between Halfa District and Dongola Province	River begins to open out.					
Dal Cataract	...	5	98 158	Bank low and even. Village here and on adjoining islands. On one island is a Mameluke fort, whence good view obtainable	Broken water about 4 miles, numerous islands with high cliffs, difficult rapid, careful pilotage required—low ridges and rocks well covered at high Nile. Channel by right bank till half-way up, and then cross to left. Total width of river about 1,500 yards. Fall of 5 feet	Bank higher than opposite one, evenly undulating. Becomes gradually cultivated. Jebel Dal, 4 miles to the east, tall conical hill, 1,973 feet.				
Sarkamatto	...	6	104 167	Desert road here leaves river for a short cut of 19 miles S.W., to Sakiet El Abd	The river from here to Amara, 16 miles on, is in parts full of small islands, but offers no difficulty	Cultivated tract, dominated in its upper portion by Jebel Firket, 1,880 feet. The action of 6.7.1896 took place to the south of this hill, and a mile north of Firket village. The railway, after short cut from Akasha, here comes close to the river, and follows it through Mograka to Kosha, where it turns sharp to the south, following for the first 12 miles the desert road to Abu Sari. Seven miles to the east lies Jebel Idris, 1,720 feet, and 6 miles E.S.E. of the latter rises the mass of Jebel Hamra, 2,368 feet.				
Jebel Firket...	...	1	105							
Firket Village	...	2	107 172	3 miles inland is a hill, 1,490 feet, name doubtful	...	Action here between E.A. and Dervishes: 7.6.96.				
Sarghun	...	4	111	...	Island near east bank.					
Kosha	...	2	113 182	Road leaves river here for Selima Oasis	The channel here turns in a wide curve to the west. Native boats take 8-10 days from here to Dulgo at high Nile with fair wind.	Headquarters of District and residence of Mamur.				

From Kosha onwards both the river banks become more and more cultivated, and are divided into districts varying from 1 to 4 or 5 miles in length, each containing one or more villages: gaps between districts in uncultivated parts.

All these districts consist of a greater or lesser amount of cultivated or uncultivated ground, together with a varying number of palm trees and huts. Each district is under a headman, and groups of them form the various sub-Districts, each under a Police Officer, a varying number of which go to make up a District; and out of these is formed the Province.

Only the more important sub-Districts will be mentioned in the River Itinerary.

Place.	Miles. Kilometres.		Left Bank.	River and General.	Right Bank.
	Inter- mediate.	From Halfa Camp.			
Khannag ...	2	283	Village.		
Sheikh Sherif ...	1	284	Small village, $\frac{3}{4}$ of a mile from river. Intervening space highly cultivated. The road from Dongola runs over alluvial soil at some distance from the river, on the outskirts of the cultivation	... ..	The east bank is desert sand, and almost entirely uncultivated.
Kajatti ...	5	289	Name disappearing. Large tomb east of road. Few scattered huts.		
Ordi El Monfok ...	1	290	Ruined village; good grazing...	Name disappearing.	
Kasr Wad Nimiri ...	1	291	A stone ruin on a mound overlooking the river. The gravel ridge, which has skirted the road all the way, here comes down to the river. From the last station the river banks are lined with palms and the ground covered with coarse grass	Islands of Lebab, Ab Turki, and Derer. Lebab Island is also spoken of as "Geziret Ashraf," and was the birthplace of the Mahdi.	
Sahaba ...	5	296	Rocky ridge widens out; good camping ground; gradually coming under cultivation.		
Akri ...	4	300	Stone village.		
Teit, Taetti ...	1	301 483	A stone village over a mile in length, situated a $\frac{1}{4}$ of a mile from the river. Between it and the river is a narrow strip of cultivation. The best camping ground is to the south of the village.		
Saati Beshir...	3	304	Domed tomb. Hills within 500 yards of river.		
Urbi ...	5	309	A large village built where the hills leave the river, leaving a good open space for camping	Island of same name opposite village very highly cultivated.	
Sori ...	4	313	A long scattered village on the river bank. A strip of cultivation runs along the river; there is, however, a break in it just north of the large tomb. This is a suitable place for a camp.		
Sali ...	4	317	The hills, which had widened out opposite Sori, here come nearly down to the river, leaving room for a shallow camp. A small scattered	... ..	Malwad opposite south end of Sali.



Khandak house)	(Rest	3	320	<p>village with strip of cultivation. The road from Urbi to this place runs over a sandy plain with scattered mimosa.</p> <p>Headquarters of District, and residence of Mamur. Built on a stony mound overlooking the river. Eight and a half hours' steaming from Dongola (October). The town could be easily defended against a force coming down river or across the desert from the west. Broken mud wall on west and north sides. Old sun-dried brick fort in middle of town on the bank; good storage, accommodation for 200 men (British); commands town and approaches. Also 4 well-built brick houses in the town, capable of housing 300 men. Town of mud huts clean and well built. Market day on Saturday. Four hundred and forty sagias in the district, each representing 4 families. Much wood in the district. Road west into desert to Marghum, etc. Remains of many churches</p>	
Shebatut, or Shabadud		1	321	<p>About 20 houses, 400 yards from river, at foot of low hills. Cultivation on banks 200 yards wide. Good space between cultivation and village. Best camping ground at south end of village. This spot was extensively used as a camping ground during the Nile Expedition. Light Camel Regiment here, Spring of 1885</p>	
Dambo	...	2	323	<p>Fifteen houses <math>\frac{1}{2}</math> mile from the river; no cultivation. Good camping ground east of village; mimosa scrub. Banks shelving; compact village, 40 houses; good landing; numerous palms and acacias</p>	
Goled Bahri and Gibli		6	329	<p>Three groups of huts extending over 1 mile, <math>\frac{3}{4}</math> mile from river. Situated in broad alluvial plain, running down to river. Monday market; mass of cultivation; <math>2\frac{3}{4}</math> hours' steam from Khandak; considerable supply of wood, the mimosa trees growing to a great height. On leaving El Goled,</p>	
		2	331	<p>Komi Island (cultivated)</p>	East bank gradually becomes more inhabited and cultivated.

Place.	Miles. Kilometres.		Left Bank.	River and General.	Right Bank.
	Inter- mediate.	From Halfa Camp.			
Wad Abbas ...	3	334	the road runs at some distance from the river across a rich alluvial plain (cultivated)	Nani Island ...	Desert road leads east from Wad Abbas to near Merowe. (76 miles.)
Rumi... ..	2	336	Villages Bahri and Gibli ... On nearing this place the ground becomes more sandy and covered with mimosa scrub. It extends for over 1 mile, amidst palms and cultivation. All supplies plentiful. Good camping ground to south. Saturday market.	Rumi Island 2 miles on ...	Stone ruins 2 miles inland to north-east.
Bakri... ..	4	340			
El Khelaiun, or Kheleiwa	4	344	From Bakri to this spot (which consists only of a poor hut or two) the river banks have been lined with coarse grass, outside of which is a strip of sand dunes and mimosa, with the road outside this. Cultivation here takes the place of the grass. Sand dunes still continue. Site of old Christian church. Stones with Greek inscriptions found	... ..	Commencement of highly cultivated Latti district, 3 to 4 miles broad, with numerous villages, <i>e.g.</i> , Amentogo, Arab Hag, Kodokol, and Megabda. Quantities of date palms and wood.
Kankalab ...	1	345	Village of 30 tukls, on a high bank overlooking a broad strip of cultivation, which intervenes between it and the river. Good camping ground 1 mile south	River shallow. Former site of Ghaddar Island ...	District narrows down as hills approach river from north-east to Ghaddar, etc.
Old Dongola, locally pronounced "Tóngalo"	6	351 564	Dongola Gharbi. Well cultivated, many trees; shelving banks and good landing. A long, scattered village, separated from the river by a broad strip of cultivation. Between the village and the desert is a tract covered with mimosa and "dead sea fruit." Fairly well wooded. Wednesday market	Baja Island ...	Old Dongola, on the right bank, is a deserted town of ruined mud houses, containing not more than 30 able-bodied men. The people live in the island of Hamur, a little higher up stream, and in the cultivated districts on the west bank; much wood in surrounding country; 422 sagias. It is built on a rocky height, overlooking the river and the desert to the east. It is capable of easy defence, and might be held by a very small force. In rear of the town

El Ghaba ... ..	4	355	A small village with a clump of trees. There is a break in the cultivation here, and space on the river for good camping ground. Markets Tuesdays and Fridays	Tangussi Island, very fertile; 8 miles long. Narrow east channel	are the ruins of a once strong fort. Severe sand storms are frequent. There is one mosque built over an old Christian church commanding the river, village, and surrounding country. Cliffs, old sandstone, 30-70 feet high.
Abu Gussi ... ..	1	356	Was an important village, with road striking south-west to Omdurman and El Fasher. British Garrison, 1885. Now deserted; river eating away banks and cultivation	Good landing west bank. On leaving Abu Gussi, the river changes its course to nearly east and west. The left bank to Debba is highly cultivated, and a little vegetation is visible on the right bank.	Fertile stretch opposite Tangussi.
Giref ... ..	4	360	The country between Abu Gussi and Debba is hard, sandy going, with low hills on the right hand, and broad patches of cultivation on the left. A desert road to Mahtul, 40 miles, here leaves the river.		
Karad or Kurot ...	9	369	Just north of Debba; 45 sagias; steep banks. Good landing for all boats. General Brackenbury's brigade was quartered here during the spring of 1885	Argi Island ... ..	Argi district, cultivated.
Debba (Rest house)	2	371 596	Consists of old field works of 430 yards perimeter, enclosing a few huts. Was garrisoned in 1884 by 250 Bashi Buzuks. Headquarters of the District, and residence of Mamur. Wheat, barley, dura and wood procurable from neighbouring cultivated districts. A direct road to Omdurman starts from here via Abu Gerad. The position is excellent, the fort being surrounded on the south by an open sandy plain, covered by slight bush, and abutting on the river on the north, where there is a good landing place, steamers and heavily laden boats being able to come close alongside. Cultivation along the banks of the river recommences about a mile distant, east and west of the fort. The Wadi Melh, a dry shallow valley, debouches on to the plain,	River here 750 yards wide; course south-east and north-west. Various cultivated islands such as Gira (373), Tambanarti (382), Ganeti (391, keep to north bank), Jigarnarti (397), and Husseinarti (404), dot the river hereabouts	Right bank bare as a rule, with cultivated patches at intervals. Ruined castle at Abkor (380).



Place.	Miles. Kilometres.		Left Bank.	River and General.	Right Bank.
	Inter- mediate.	From Halfa Camp.			
Abu Dom ... ..	16	387 623	<p>where its course is lost in the sand. By following up the course of this valley, the old and now little used Kordofan caravan road is joined, leading to Bir Mahtul and El Obeid. A commercial centre (formerly) for ivory and gum from, and for European merchandise for Kordofan and Darfur. Geological formation, Nubian sandstone, acted on by heat, and metamorphosed on the surface. Petrified wood is found in great quantities.</p> <p>The road passes over sand and some slight sandhills while passing Abu Dom. An important village of about 300 men; the houses are scattered along the edge of the sand; there are 30 water-wheels and a few palms. Cultivation: dura, wheat, Indian corn. Market on Wednesdays. The most southerly point on the river before reaching Berber. A more northerly course is then taken. The left bank continues most rich in cultivation; wood abounds. Next districts in order: Abu Klei-wat, Jura (with ruins of Coptic church, road makes short cut to east), Artimoga, Fakrin Koti, Mansur Koti</p>	River channel now curves, and runs south-west and north-east. Easy navigation to foot of 4th Cataract.	East bank becomes more cultivated. Districts of Affat, Abseit, Nizezi, Neriko and Difar. Rest house at Affat.
Hetani or Tani ... ..	16	403	<p>Rocky Hill Jebel Taraka 1 mile to south; outlying spurs from J. El Nob 5 miles to south. Old castle (Galat Hatani) 1 mile on, in ruins, with rock well. Narrow road, camels single file, was held by Emir Heddai against Mudir of Dongola, in 1884</p>		
—	6	409	<p>Camp of General Dormer's Brigade, 1885. Bush gets thinner, road descends to—</p>	... ..	Kori and Takar districts. Bank fairly cultivated. Districts El Bar, El Barsa, Karafab (420).





Place.	Miles. Kilometres.		Left Bank.	River and General.	Right Bank.
	Inter- mediate.	From Halfa Camp.			
Hannek or Korti district	1	432	Districts of Korei, Arak, and Tangassi	Abu Rannat Island (436) 3 miles long ... ..	Large village of mud-huts. Much wood of considerable size. Then come Magashi, El Zoma, Tulbenab, and Kajabi.
Tangassi ... ..	9	441 710	A large scattered village with deep cultivation in a salient angle of the river. Tuesday market, the most important in province and well known throughout the Sudan. Police post.		
El Debeiba ... ..	2	443	Small village with wide strip cultivation	... ..	Desert sandstone rock comes down to the right bank, forming cliffs 40 to 60 feet high, extending for about 2½ miles along the bank.
Abu Dom Sanam (site of ancient town of Napata)	3	446	A scattered village at the confluence of the Khor Abu Dom with the Nile. The cultivation runs a considerable distance inland along the Khor, which delivers a considerable stream during the rainy season. Surrounded by dense vegetation and trees. A road from here joins the Dugiyet-Berber road. Supplies of all kinds plentiful.		
Merowe (capital) ...	1	447 719	Merowe. Headquarters of province and residence of the Governor. It is practically on the site of the 1896 camp of Abu Dom Sanam. The town has yet to be built. At present it only consists of about 30 houses, including offices, telegraph, etc. Desert road to S.E. to Jakdul	... ..	Old village of Merowe. Advanced post during summer of 1885, under Commander Julian Baker, R.N. Will be terminus of the branch line from Abu Hamed. From Affat to Merowe boats will have to be towed by tugs, as they are unable to navigate this bit of river against wind and stream.

## RECAPITULATORY TABLE OF DISTANCES.

	Intermediate.		From Halfa.	
	Miles.	Kilometres.	Miles.	Kilometres.
Faras Island ... ..	—	—	20	32
Halfa Camp ... ..	20	32	—	—
Foot of 2nd Cataract ... ..	6½	10½	6½	10½
Head of " " ... ..	6½	10½	13	21
Akasha ... ..	72	116	85	137
Kosha ... ..	28	45	113	182
Dalga ... ..	78	125	191	307
Kaibar Cataract ... ..	12	19	203	325
Third (Hannek) Cataract ... ..	26	42	229	368
Dongola ... ..	51	82	280	450
Debba ... ..	91	146	371	596
Korti ... ..	45	72	416	668
Merowe ... ..	31	50	447	719

## SECTION 2.—MEROWE TO KHARTOUM.

## SUB-SECTION (A). MEROWE TO ABU HAMED.

The distinguishing feature of the river between Merowe and Abu Hamed is the difficulty of navigation, and also of communications along either bank. A variety of rapids, mostly impassable except at high Nile, form the 4th Cataract, which extends practically from Belal to Shirri, a distance of about 67 miles, whilst there are little or no cultivation or supplies, except in patches on either bank. This (Rapids) portion of the river was ascended in whale boats by most of the River Column in 1885, and the right bank was traversed by General Hunter's flying column in 1897, when proceeding to attack Abu Hamed. Otherwise it is not now generally in use for communications,\* owing to these obvious difficulties. A telegraph line now connects Merowe with Abu Hamed.

[The reader who may wish for further detail than that given below is referred to "N.O." 1st and 2nd editions (1897 and 1898), which give some additional reports by slightly different routes.]

## REMARKS ON THE SHAIGIA CATARACTS.

(Lieut. Poore, R.N., October, 1884.)

The prevailing winds are north-easterly and boats can rarely use their sails, excepting occasionally at high Nile when a southerly wind may blow for a few days.

Boats leaving Ambugol for Abu Hamed invariably have to tow the whole way.

The pilots state the average passage of a nuggert† from Merowe to Abu Hamed as being from 35 to 40 days, but they appear to perform the journey in parties of about 10 boats, in order to supply their own hauling labour, thus considerably increasing the time of passage.

Nuggers generally leave Debba on the trip to Abu Hamed 20 days before high Nile and try to time their arrival at Abu Hamed as soon as possible after the river begins to fall.

Steamers should not leave Merowe for Abu Hamed later than 10 days after high Nile.

Nuggers should not leave Merowe for Abu Hamed later than 15 days after high Nile.

There are men in the village of Bela at the foot of the Gerendid Cataract and in a few of the villages near Merowe who are acquainted with the different cataracts, but would seem to be more useful as guides to point out the different channels than as pilots, their knowledge of boats or nuggers seeming very limited.

It would be advisable to take pilots for the cataracts from the rais of nuggers.

Supplies between the cataract of Gerendid and Abu Hamed are very scanty, a few scattered patches of date palms, wheat and dura constituting all cultivation.

Between the different cataracts the banks appear to be rocky and badly adapted for towing. The stream is swift with frequent sharp bends and the river studded with rocks and small islands.

\* A reconnaissance for a railway connecting Merowe with Abu Hamed was carried out in April and May, 1904, by Lieut. Newcombe, R.E. The amount of rock cutting necessary to lay the line near the river on the R.B. is said to be prohibitive, and the most feasible scheme seems to be to lay the line some distance inland and approach the river perhaps twice only between Abu Hamed and Merowe. The length of line would be roughly about 150 miles. It has been definitely decided to commence the construction of this line at an early date.

† Nowadays (1904) nuggers never make this journey.



Confusion may arise from the custom of the pilots and natives in continuing the terms east and west as regards the river banks after the river has turned to the northward at Ambugol; the right bank being invariably termed the east and *vice versa* without reference to the direction of the river. Thus, between Ambugol and Abu Hamed, a wind which is termed by the pilots south-westerly is in reality north-easterly.

#### REPORT ON PASSAGE OF 4TH CATARACT BY NUGGERS AND GAYASSAS.

(Captain W. Doran, August, 1897.)

The following is a report on the river between Kassingar and Amari, together with remarks on points that have come under my observation:—

Nuggers with a strong favourable wind can get up to Meshra El Abiad, but there is a strong current below Meshra El Abiad for about 3 or 4 miles, and the track (on the right bank) is rocky, or much obstructed by sunt trees.

Meshra El Abiad presents no great difficulty. About 50 men will pull a nugger of 200 ardebs through in half an hour.

For about 3 miles after leaving Meshra El Abiad, the channel on the right bank presents no difficulty, though the stream is strong, and the banks steep and covered with sunt bushes, which at high Nile will impede towing.

About 5 miles from Meshra El Abiad the banks become rocky, and rapids are met with; the water being very bad, and rocks numerous. I crossed this rapid, which is about a mile in length, and extends to just below the village of Shebabik, in half a gale. Otherwise, I should think the passage would be difficult, as the rocks on the right bank are very steep, and without a strong wind portage would probably be necessary. From Shebabik village, by following a channel on the right bank past the village of Abu Haraz, good water is met with for about 6 miles, till the cataract of Halfaya is reached.

From Halfaya to the village of Amari, a distance of about 2 miles, the river is very difficult, tortuous, and rocky, towing being necessary throughout.

From Amari, I am informed, the river is not difficult.

It must be understood that these remarks refer to the river as I found it. Any rise or fall may make difficult places easy, and *vice versa*.

I would venture to make the following suggestions for future river convoys:—

1. That only boats of 150 ardebs should be sent up at present. Large boats are unwieldy, cause great delay, break ropes, and run the risk of losing stores. For example, one of my boats of 300 ardebs took 4 hours to get up a place which boats of 150 ardebs crossed in an hour. It broke two ropes, and was nearly wrecked on several occasions, besides being always a source of delay to the rest of the convoy. The exertion caused to the men in hauling these heavy boats is very great, much greater than that of hauling two boats of half the capacity.

2. Each convoy should consist of not more than 20 boats under a British officer, and should have with it two companies (200 men) of an Egyptian battalion to haul the boats over the cataracts, and in the ordinary stream when the wind is unfavourable. If the water proves easy beyond this place, Amari, these men might return to Merowe from here by return convoy. Men who are good swimmers should be selected, if possible, and, as the work entails great exertion on the men—most of them having to stand work in the water all day—the companies should be relieved after one or two trips.

Unless considered necessary for safety, these men should not bring arms or ammunition with them, except just sufficient for a small guard, as these have to be portaged across bad places, causing delay.

The large cooking pot, "kazan," is not suitable for these occasions, as men are often separated on islands from the rest of the convoy at night time, and are unable to get their proper food after a hard day's work. Something of the Flanders kettle type would be better.

3. Each convoy should be provided with four strong hemp ropes of at least 200 fathoms each, in addition to the smaller ropes carried by each boat. These latter should be inspected before the convoy starts.

A small boat of about 50 ardebs would also be most useful to enable the officer in charge of the convoy to go up and down his convoy, and also to assist in the portage of stores from the nearer boats when they get stuck in shallow places or rocks.

#### REPORT ON THE PASSAGE OF GUNBOATS FROM MEROWE TO ABU HAMED, 9TH TO 29TH AUGUST, 1897 (*vide* 1489, MEROWE AND ABU HAMED SHEETS.)\*

(Commander Colin Keppel, R.N.)

To Kasinjar on right bank, river broad, navigation simple. No obstacles. Thence to Kenisha, navigation easy.

\* For practical purposes reference should be made to Capt. E. A. Stanton's large scale sketches (I.D. Nubia District, 132) of 23rd August, 1897 (El Bana and Halfa), and 25th August, 1897 (Geridu Rapid). Letters refer to points thus marked on these sketches.

At Meshra El Abiad there is a difficult, narrow passage between two rocky islands, with a very sharp turn.. Water very rapid, which continues until Um Deras Island is reached.

N.B.—The cataract marked on the official map as El Dermi was not recognisable at this time of the year.

Um Deras Island is practically at the foot of what is termed the Gab El Abd, or 4th Cataract. It was from thence that a course by the left bank was followed by the river column in 1884-85. This channel was found to be so difficult and dangerous at high Nile, it was decided to examine the channel by the right bank. This was found to be more easily navigable for steamers at this time of the year. It should, however, be noted that this channel, though navigable for steamers at high Nile, and undoubtedly the only channel to be followed with safety at that time, would be impassable at any other time of the year. As at low Nile, many parts of it are dry.

From Um Deras Island to the point marked Khor Abu Herejil (north bank)(A),\* no great difficulties are encountered.

At this point all guns, ammunition stores, and heavy gear of every description were taken out of the steamers and portaged to the camp of El Bana, a distance of about 2 miles.

The following arrangements were then made for passing the steamers over this cataract :—

A wire hawser was fastened round the ship. Two hawsers were then led out of the steamer, one for hauling, and other to serve as a guy to steady her, and to prevent her bow from being taken round by the force of water.

About 600 yards up-stream, at the junction of a smaller channel (B), these hawsers were slipped, and the steamer reached the southernmost point of the next bend (C).

From this point to a point 1,100 yards up-stream (D) the greatest difficulties were met with, owing to the necessity of passing ropes on to the island 300 yards up-stream (E). As many men as could swim had to cross over to this island. The steamer was then hauled up to the southern end of the island.

The rope had now to be passed from the island (E) to point (D).

At point (D) the haulage became very difficult, as the river thence, for 600 yards, to point (G), in mid-stream, is intersected by isolated rocks, upon which it was necessary to have groups of men in order to pass the rope from one rock to another. From point (G) the hawser was then led to the mainland. Guy ropes were used throughout.

After passing the rock marked (G) powerful steamers, of the "Zafir" class, were able to steam, without further haulage, to El Bana, but otherwise it was necessary to use ropes for hauling up to El Bana.

On leaving El Bana, the channel on the right bank was followed, and though the water was rapid in places, rushing between numerous small islands, no great difficulty was encountered until arrival at the foot of the Geridu (Geriddo) Rapids (3¼ miles up). Here it was necessary to tie up to the bank in order that each steamer might pass over the rapid separately.

It will be seen that the channel takes a very sharp turn here (between points A and B); a large volume of water rushes with considerable force between an island (440 yards long, with a rock at the west end) and the south bank (a promontory on the south bank), where a rope was attached to a rock, and then gradually eased off to let the bow go round.

From Geridu to Hosh El Geruf the channel is devoid of obstacles.

The channel taken was by the right, until El Shwadiyat was reached, whence it crosses to the left bank and continues thus as far as Rakabat El Gamal; here the river becomes a maze of small islands. The channel continues by the left (?) bank of Dulka Island (known by the natives as Dirbi), smaller islands being left on the starboard side.

The current thence became very strong, and continued so until Kirbekan Rapids was reached.

At the bottom of these rapids the steamers were stopped, but the cataract, after examination, having been considered passable without haulage, each steamer went over it separately, in order to prevent any risk of one hampering another.

The main stream was then followed as far as Uss Rapids; here the volume of water was very great. From the top of Uss Rapids the channel followed was by the left bank as far as Sherari Island, whence it passes by the right bank of that island, and thence between it and Shirri Island to the right bank of the river.

The river now becomes very broad, and navigation is practicable on either bank from Salamat to Hebi. From Hebi to Abu Selem the channel is by the left bank. In Huella Rapids there was a strong rush of water.

The river now becomes much intersected by small islands, and, though navigation is not very difficult, skilful pilotage is necessary.

Wood was found in the following places :—

El Bana.  
Hosh El Geruf.  
Uss village.

Salamat.  
Abu Selem.  
Left bank, just below Mograt Island.



## ITINERARY (LEFT BANK) FROM ABU DOM SANAM TO OPPOSITE HEBI (OR HEBBA)

(Major Slade, R.A., February, 1885.)

Names of Places.	Distances in miles.		Description.
	Inter-mediate.	Total from Merowe.	
El Dueim ... ..	3	3	A small scattered village ; a large white-domed tomb makes it visible for some distance.
Sagag ... ..	1	4	A compact hamlet, mostly of straw huts, $\frac{1}{4}$ mile from the river. The banks, which for the last 4 miles have been bare, here become studded with palms.
Gereif ... ..	1	5	A collection of wells and sagias from which the ground is cultivated. The uncultivated ground is covered with coarse grass. A low range of hills here touches the south of the road.
Nurri ... ..	2	7	This village extends a considerable distance inland. Near it, to the south of the road are 11 pyramids. Soon after leaving them the alluvial ground over which the road has hitherto passed gives place to sand.
Belal ... ..	1	8	A large well-built village. The road here runs close to the river between small patches of cultivation and a track of very broken rocky ground, which comes to within $\frac{1}{4}$ mile of the river. This stony tract is about 50 feet above the alluvial ground. At the east end of the village a break in the cultivation leaves room for a small camp on the river bank.
Khor-el-Sorawi ... ..	3	11	A dry watercourse, 20 yards wide. It shows signs of out-pouring a considerable stream in the rainy season. 1 mile further to the east the river makes a sharp bend to the north-east, the edge of broken ground continuing to run in an easterly direction. The road takes an intermediate course across a plain of firm gravel which lies between the rocks and the river.
Kanisa ... ..	1	12	A small village $\frac{1}{2}$ mile to the north of the road, at the foot of a small rocky hill, in an angle of the river.
El Dugaiyet ... ..	1	13	A scattered village. The broken ground here again comes to within $\frac{1}{2}$ mile of the river. There is a good camping ground on the river bank near the village. The road to Bir Sani and Berber here branches off. It runs at first over very rocky ground. There are said to be 90 islands in the river between this place and Belal. The cultivation of the district is for the most part on these islands.
Hamdab ... ..	5	18	A very long village with a fair amount of cultivation. The road from Dugaiyet runs between the broken ground and thick bush. Just before reaching Hamdab the rocky ground opens out considerably at the mouth of the Khor El Shungui. A good camping ground on the river bank. The road described from Hamdab onwards was followed by part of River Column, 1885.
Jebel Kulgeili ... ..	4	22	Dates, durra, cotton, dukhn, and barley grown. The road to Berber leaves the river about 2 miles below Hamdab, crossing the rocky ground at a point marked by two solitary dom palms. Good camping ground for a large force, commanded by rocky ridge, 400 yards from river. The road as far as Jebel Kulgeili skirts the belt of cultivation, which is interspersed with a few native houses. It is commanded the whole way by a low ridge of rocks, at a distance from the river varying from 50 to 500 yards.
Auli ... ..	8	30	Jebel Kulgeili, 400 feet high, commands the surrounding country for a distance of several miles. The direct desert road to Berti (19 miles) leaves the river at the foot of this hill. The road, after leaving Kulgeili, becomes rocky and much cut up by ravines and sandy khors, gradually becoming more difficult as the islands of Auli are approached. The river between Hamdab and Auli is quite open, and free from broken water.
El Kabur ... ..	3	33	At Auli the cataract of Terai commences ; but it is not difficult. There are several houses and much cultivation on the islands and on the left bank. Good camping grounds are to be found.
			Cultivation extends along the road, broken at times by rocky and barren ground. At El Kabur, which is situated at the end of the nest of islands which forms the 4th or Edermi Cataract, there is scanty cultivation and a few houses.
			From Auli to El Kabur by water the boat channel follows the right bank. There is one difficult gate, about two-thirds of the way up, at which heavy stores have to be portaged. The country to the east of the road along the left bank is very rocky and broken, and nearly impracticable for cavalry.

Names of Places.	Distances in miles.		Description.
	Inter-mediate.	Total from Merowe.	
Kabeinat (ruined forts)	1	34	The road leaves the river at El Kabur and follows the bed of a sandy khor until an old ruined fort built upon a rocky prominence commanding the river is reached. The rocky and broken ground skirts the river between El Kabur and Kabeinat, and is impracticable for cavalry. Opposite this ruined fort there is another of a similar kind. The river between these two forts is very narrow, and forms the commencement of the Kabeinat Cataract.
Mushani ridge ...	5	39	The road skirts the river bank; but although the country is more open than that previously travelled it is broken at parts by rocky ridges and deep ravines. Much acacia and many dom palms are found. Kabeinat Cataract presents no difficulty to navigation, and although the current is rapid, no broken water offering serious impediments to the passage of boats, is met with until the Gab El Abd Gate, 2 miles above the ruined forts, is reached. Here there is a direct fall of water which, however, can be avoided by going over to the right bank. From this point to Mushani ridge, which may be called the upper end of Gab El Abd Cataract, the river presents most serious difficulties. Tracking from rocks and islands has invariably to be resorted to, and at low Nile it is doubtful whether even light boats could be taken up this part of the river.
Warrak ...	1	40	Mushani Ridge commands the country to the north-east as far as the distant hills overlooking Berti. The ridge runs at right angles to the river, and the rocks and boulders in which it terminates come down close to the left bank of the river. There is but little cultivation along this part of the river, except on the islands of Umderas and Amri, the former of which is passed just after leaving Kabeinat, and at the village of Shebabik on the right bank opposite the lower end of Umderas Island. There is a large tomb and a few detached huts at this point, with a certain amount of cultivation, very good camping grounds, much mimosa, and many dom-palm trees. The cataract of Um Hababoa is here met with, lying between Kandi Island and the left bank. It is very difficult, and it is supposed, from the remains of wreckage found lying about, it was near this point that Ismail Pacha abandoned his boats in 1820. This cataract can be avoided at high Nile by going between the islands of Amri and Kandi, the passage between which islands was nearly dry in February, 1885. A track leads from Warrak to Berti, across rocky and broken ground; but it is not much shorter than that generally followed.
Gamra ...	2	42	The road skirts the river through considerable cultivation, mostly dukhn. At Gamra, which is opposite the upper end of Kandi Island, there are several native huts, and good camping grounds can everywhere be found. The river between Warrak and Gamra is not difficult; but there is a very swift current, and tracking is necessary at certain points from the left bank. One mile beyond Gamra the road leaves the river to avoid the rocky kopjes which command the foot and mark the commencement of the Rahami Cataract. It strikes the river again 2 miles below Berti. It is very rocky, and much cut up by deep khors and ravines. A broad, sandy khor leaves the river $1\frac{1}{2}$ miles above Gamra, and runs away to the east until lost in the desert. By following this khor until it strikes the Kulgeili-Berti road, the mountains and rocky country overlooking Berti can be avoided, and Berti entered at its upper end. The river between the foot of Rahami Cataract and Berti offers most serious obstacles to navigation. The boat channel lies along the right bank.
Berti ...	6	48	Berti is a scattered village extending over a length of 2 miles. It is situated mostly on an island which, however, forms part of the mainland at low Nile. The cultivation is very rich and plentiful, and barley, dura, cotton, wheat, beans, dates, and dukhn grow in great abundance. This is the boundary between Dongola and Berber Provinces. The lower end of the village is situated in rocky ground, but the larger portion lies in the open. The direct road from Jebel Kulgeili enters near the house of Suleiman Wad Gamr, about half-way up the village. Berti is the head-quarters of the Monasir tribe, and is on the boundary between Berber and Dongola Provinces.
Jebel Kirbekan...	8	56	The island of Ishashi is passed just before reaching Berti, and is very richly cultivated. Between Berti and El Kirbekan there are several pieces of broken water, but nothing worthy of the term "cataract" is to be met with until opposite Dulka Island, where the cataract of Ragabat El Gamal obstructs the river; it is not difficult. Boni Island lies on the right side of the river, abreast of and overlapping Dulka Island, and between it and the right bank the cataract of Abu Sayal is situated. It is impassable at low Nile. In the centre of Boni Island, and in prolongation of the Kirbekan



Names of Places.	Distance in miles.		Description.
	Inter-mediate.	Total from Merowe.	
			ridge, is a remarkable round-topped mountain, which can be seen for several miles before Boni Island is reached.
			On leaving the belt of cultivation at Berti, the track leaves the river and winds through a mass of rocks and boulders until it again strikes the river opposite a small island, on which are the remains of a ruined castle (Castle Camp of River Column); distance from Berti, 6 miles. Scant cultivation and a good camping ground for a small force are here to be found.
			After leaving the bank opposite the ruined castle, the track again quits the river and follows the bed of a sandy khor, interrupted in parts by belts of rocks and boulders until the river is again struck opposite Dulka Island ( $6\frac{1}{2}$ miles from Castle Camp), where there is a good camping ground amidst patches of cultivation. One and a half miles beyond this point the long razor-backed hill, running at right angles to the course of the Nile, and known as Jebel Kirbekan (300 feet), is situated. It completely blocks the road, but can be easily turned by marching round its south-west extremity.
El Kirbekan (village) ...	4	60	The action of 10.2.85 took place here.
			On leaving Jebel Kirbekan, the track follows the bed of a sandy khor, much broken in places by rocks, &c., for 4 miles, when the village of El Kirbekan, at the lower entrance of the Shukuk Pass, is reached. Here there are a few mud houses, palm trees, and some scant vegetation; barley, dura, and dukhn.
			The Wadi El Arku, which breaks up into several outlets on nearing the river, comes out at this point, and it is here that the direct road to Abu Egli (78 miles), <i>via</i> the Jura Wells (48 miles), leaves the river.
Shukuk Pass (south end)	$\frac{1}{2}$	$60\frac{1}{2}$	The Shukuk Pass is entered immediately after leaving El Kirbekan. The track leaves the river, and follows the bed of a sandy khor, completely commanded by rocky heights varying from 20 feet to 100 feet, until Jebel Shukuk (350 feet) is reached. This mountain, with its conspicuous marble tops, marks the half-way through the Pass.
			Leaving Jebel Shukuk on the left-hand side, the track inclines towards the river, the Pass becomes narrower and more difficult, and at places it is impossible for more than one loaded camel to pass at a time. The track at this point is nearly impracticable, and it is with the greatest difficulty that even horses can keep their footing.
Shukuk Pass (north end)	$7\frac{1}{2}$	68	The Shukuk Pass terminates suddenly opposite the upper end of Uss Island, and at the commencement of Shoar Island, on which latter island there are many small villages, and much cultivation.
			The Shukuk Pass can be turned by leaving the river at El Kirbekan, striking into the desert and skirting the whole block of mountains through which the pass runs. This is an easy half-day's camel ride, but there is no water along the road.
			Capt. Maxse says (1897) the pass is 7 miles long; there is water at each end, and the going is good, with the exception of $\frac{1}{2}$ mile at the south-west entrance, and $\frac{3}{4}$ mile at the north-east exit.
			During that first $\frac{1}{2}$ mile at the entrance the roadway is narrow and intricate, the path being strewn with quantities of small loose rocks and boulders. These could be cleared away. The labour thus expended would greatly facilitate all subsequent movements of troops and transport.
			The $\frac{3}{4}$ mile of exit could similarly be much improved by manual labour. A little blasting would help still more here.
			There is, however, 100 yards of pathway at the bottom of a deep cutting, which would defy ordinary appliances. Still there is room for a loaded camel, and the removal of loose stones would make even this bit easy.
			The interior of the pass is mostly a broad, level, sandy khor, varying in width from 5 yards to 200 yards.
			Should the pass be held by a stubborn foe, it can be turned without difficulty from the east.
			The river between El Kirbekan and the end of the Shukuk Pass is clear and free from obstacles, though it flows at times between steep and rocky banks.
			Just as the upper end of Uss Island is reached, a small rapid has to be passed which is not, however, very difficult.
			Both north and south of the Shukuk Pass there are numerous drawings of a rough description representing cattle, monkeys, and dogs, probably the same period as those at Murrat—2nd and 3rd century A.D. (Major Sir H. Hill, Bart.).
Salamat ....	12	80	On debouching from the Shukuk Pass, the country commences to open out, and the hills to recede further from the river. The track follows the bank, which now commences to become more generally cultivated. Just before coming abreast of Shoar Island, the



Names of Places.	Distance in miles.		Description.
	Inter- mediate.	Total from Merowe.	
Opposite Hebi, or Hebba	8	88	<p>track ascends a rocky plateau, from the summit of which the first view of Jebel Osma is obtained.</p> <p>The Island of Sherrai follows Shoar Island, but it is very barren and rocky. One mile up this island the cataract of Tuari is passed. It is very difficult, and the river is here much broken by rocks and shallows.</p> <p>After passing Tuari Cataract the cultivation increases still more, and sagias and groups of date palms occur at frequent intervals along the bank. The fertile and densely populated Island of Sherri succeeds that of Sherrari.</p> <p>The track continues along the bank of the river, deviating occasionally to avoid clusters of rocks on a khor, until Salamat, opposite the upper end of Sherri Island, is reached. It is at this point that the cataract of Um Deras is placed on the official maps, but no impediment to navigation exists.</p> <p>Salamat, the principal village in the Monasir country, is a long straggling village of fairly-built mud huts, the principal of which belong to Suleiman Wad Gaur and his uncles, Omar and Abu Bakr. The country is very rich and there are several large groups of palm trees.</p> <p>The desert comes down to the bank of the river on the right bank, just above Salamat. The track, after leaving Salamat, follows the bank of the river until Jebel Osma is reached, 3 miles</p> <p>Leaving this solitary mountain on the left, a detour of 1 mile is made, where the river is again struck. A broad sandy khor runs at the foot of Jebel Osma. The bank is now followed until abreast of the village of Hebi, situated on the right bank. The road is good throughout. Patches of rich cultivation are constantly met with, near groups of huts built in the rocks and boulders, which are left on the right-hand side.</p> <p>There are two broad khors running into the desert between Salamat and Jebel Osma. Mimosa or sūnt trees, of an unusually large size, are met with along the road. The river is free from obstruction.</p> <p>If going to Abu Hamed, it is advisable to cross the Nile opposite Hebi, where the river affords great facilities for crossing and swimming animals. The island of Kan and smaller islands on the right bank may be utilized in the crossing. Lieut.-Colonel Stewart's steamer, on its way from Khartoum, was wrecked on the island of Kan on the 18th September, 1884, and he and his party were treacherously murdered in the house of one named Othman Fakri, commonly known as Othman Amian, in the village of Hebi.</p> <p>Hebi is a straggling village, composed of small mud huts, built in the rocks. There are some conspicuous palm trees on the bank of the river. The village was completely destroyed by the British troops in February, 1885. There is much cultivation in and near Hebi : dura, dukhn, barley, beans, etc., growing in luxuriance.</p>

## OLD MEROWE TO ABU HAMED, BY THE RIGHT BANK OF THE NILE.

(Major Hon. M. G. Talbot, R.E., October, 1897.)

## General Notes.

- (i.) The grazing for camels is moderate.  
(ii.) The places where water can be obtained depend on the time of the year. The bed of the river is the only source of supply.  
(iii.) No considerable elevation is crossed anywhere. Probably the road is never more than 100 to 150 feet above high Nile level.  
(iv.) Telegraph line follows road where not otherwise mentioned.  
(v.) No supplies obtainable on right bank.

Names of Places.	Distance in miles.		Description.
	Inter-mediate.	Total from Merowe.	
Old Merowe ... ..	...	...	Village.
J. Barkal ... ..	4	4	Two miles inland. Ancient ruined pyramids at base. Desert road from Dongola joins river here.
Kasinjar ... ..	4	8	Telegraph line crosses from left to right bank here. Small fort. On leaving Kasinjar fort the road curves round with the river, but gradually recedes from it. After 2 miles of good firm sand, with thin thorny scrub, the road turns away from the river to the north-east, passing to the right of Jebel Wad El Duga, beyond which it turns N.N.E., over undulating, stony ground, draining to right. The going is good to 11 miles. At about 13 miles road passes into a shallow basin draining east, from which it emerges at 14½ miles, and begins to descend to river by a bad path down and across small khors. Reaches river at Meshra El Abiad, a good watering place, at 15½ miles. From 11 to 14½ miles the road, though generally good, is less so than before, and passes over bits of stony ground, which would be very troublesome at night or even for a considerable body marching by day. From Meshra El Abiad road runs along river bank; good going for camels, and some grass and thorn grazing. A few huts at Amrao, where there is plenty of room to camp and some shade.
Amrao ... ..	19	17	There is also a road by the river, which was used by General Hunter's column. It is said to be bad and to take baggage camels 5 hours.
Abu Haraz ... ..	9½	36½	Desert road leaves river at once and follows telegraph wire for 3½ miles, when latter strikes off to right to river, and continues along it to Abu Haraz. To 3½ miles road is good, in flat khor, few bushes on left, and gigantic boulders on right. Keeps on straight to 8 miles, crossing plain strewn with scattered ridges of granite boulders, and then turns slightly to right down to river at Abu Haraz, 9 miles, where there are a few ruined mud houses, and a clump of palms at 9½ miles, with camp and shade for a battalion. No water along road.
Hosh El Geruf ... ..	12	48½	For 4½ miles road winds in and out of low slaty and granitic ridges, with strip of good sand between, keeping generally near the river. It then leaves the river near Khor Abu Herejil and strikes across low slaty ridges to about 7½ miles, when it again strikes an arm of the river, dry at this season, along which it keeps for 1 mile, and then across broad, low open plateau to Hosh El Geruf. Like all the names in this part, Hosh El Geruf is applied to a strip along the river, rather than to any one spot or village. The spot referred to here is a clump of palms, at the foot of a low hill, near a little cultivation.
Salmia ... ..	14	62½	Road generally bad, quite unsuitable for wheels. It follows river at starting for 1 mile, and then, leaving it, winds up and down khors and over low rocky ridges almost the whole way. From about 8½ to 10 miles is the worst bit. Here horses should be led in single file, after that road enters sandy plain and is good to 13 miles, when it commences to cross low ridges again. At 13½ miles the river is seen for the first time and the road descends to Salmia, which consists of two or three groves of palms, with a field or two of dura and three or four houses of Monasir. Room to camp three or four battalions, with a little shade.



Names of Places.	Distance in miles.		Description.
	Inter-mediate.	Total from Merowē.	
Dakhfili, south end . . .	12½	75	<p>Road leaves river at once, and for 1½ miles crosses stony ground strewn with boulders. It then gets on to sandy and more open ground, and is good to 3 miles when it drops down to valley of river by a bad path. Then very good sand to 4 miles, where it strikes river bank at Kamasab, just opposite Jebel Us. From here road is bad nearly to 6 miles, when a strip of good going takes it as far as Shukoka, 9 miles, where there is a little cultivation on the bank of the river and on a backwater. Southern end of Dakhfili is reached at 12½ miles, road being partly along river and never very far from it, and passing several small groups of huts. Dakhfili is a large camping ground ½ mile long, opposite Shirri Island. It has a few palms and some large sunt trees. No cultivation to speak of.</p> <p>There is another route to Dakhfili from Hosh El Geruf, which leaves the river at much the same place, and keeps straight across the desert to Dakhfili. It was much used by convoys, even at night, and is undoubtedly much better going than the Salmia route, and probably a couple of miles shorter, but there is no water along it.</p> <p>At the north-east end of Dakhfili, road leaves the river, and after 1 mile over heavy sand and sand-covered rock, emerges into the open Khor Haweili, 500 to 600 yards wide, and bounded by low sand-covered slopes. (From this point a track leads to the river and round by it to Um Duema, distance 14 to 15 miles, bad going.) Road continues up khor to 7 miles over sand and gravel, generally very good for camels, but a little soft for men and horses. Room to march in any formation. (From here desert road continues almost straight on to El Gab, 17 miles, mostly good going, but some heavy sand for the last 3 or 4 miles.) At 7½ miles the Um Duema road strikes off to right by an easy but unfrequented path over low hills partly covered with sand, and descends by a baddish path between Ab Rumeila and Hebi at 11 miles. Road continues easy but narrow along the bank, passing Hebi, 12 miles, where there are a few houses, with some palms and a little cultivation, and Um Duema at 13 miles, which is similar to Hebi. At 14 miles, road enters sand which lasts to El Gab. It is heavy in places and bad for men and horses. El Gab is an ancient ruined post on a low rock overlooking the river. There is a small patch of cultivation and a few palms. Plenty of room to camp.</p>
El Gab, <i>via</i> Um Duema	19	94	<p>Sand continues heavy to 2½ miles, where direct road by desert leaves river and strikes it again at about 10 miles. (I did not follow this, but believe it is fairly good going.) It is possible to march along the river bank, a little longer, but the sand is heavier.</p>
Khulla, north end direct road	16	110	<p>Khulla is a strip of the bank some 4 miles long; no houses nor cultivation, only a few shepherds' huts; many sunt trees and dom palms. Much room to camp and plenty of shade. The sand is piled with hillocks along the bank, and the road runs on lower ground from 100 to 600 yards from river. Northern boundary of Khulla is Khor Hamadein. This was the furthest point attained by the River Column, 1885.</p>
Ab Tin, by river road . . .	20	130	<p>After crossing Khor Hamadein, road keeps due east for about 4 miles and passes through Gemmeiza, a district similar to Khulla, but not so well wooded. Low gravelly hills approach on right bank, and at several points tracks branch off to the left forming short cuts over these hills towards Ab Tin. (I did not travel by any of these, but I understand they are easy going.) The telegraph line follows one of these. At 4 miles road turns north by baddish track, heavy and stony, following river bank, and passes small village of Tibna at 6 miles. Fair but heavyish going to 10 miles, where short cuts from Khulla and telegraph line join in. Bad going to 11 miles over low, rocky ridges covered with sand; then excellent going to Ginefab, 14 miles. Then ½ mile of bad going, and 5 miles good going to Shellal Gurgurib over open ground with many sunt trees; ¾ mile more of good going to Ab Tin at 20 miles. This, though quite a small place, is the largest village that has been passed. It has a small area of cultivation and some palms.</p>
Abu Hamed . . . . .	10	140	<p>Road good and open, though heavy in places, for 5 miles, till it strikes railway; then heavy sand with small hillocks and many dom palms and other trees to 9 miles, where road and river turn south and track gets harder. The railway station is about 1 mile north of Abu Hamed village. Residence of Mamur and headquarters of the district.</p>

Abu Hamed used to be chiefly notable as being the point of arrival and departure of the various caravan routes which traverse the Korosko Desert, and takes its name from a highly venerated sheikh, whose tomb is here situated.



The merchants were in the habit of depositing here any articles with which they did not wish to encumber themselves during their journey through the desert, and the environs of the tomb used to be surrounded by every sort of superfluous impedimenta, left by their owners to await their return, with no other protection than that afforded by the sanctity of the defunct sheikh.

Considerable plantations of acacias and doms are found in the neighbourhood of the village, which is also remarkable for the numerous "dunes" or sand hills collected by the winds from the surrounding desert.

It is a small village, utterly destitute of supplies. The sterile desert extends to the very margin of the Nile. Altitude 1,040 feet above sea level. Desert perfectly flat. Deep sand. Major-General Hunter attacked and took the place from the Dervishes on the 7th August, 1897. (*Vide* p. 254.) The railway reached this point from Wadi Halfa on 31st October, 1897. It is now a watering station for trains, with modern bathrooms for tourists, etc. It is the residence of the Mamur and inspector of the Monasir and Robatab Districts. It is also proposed as the junction of a branch line to Merowe.

#### SUB-SECTION (B).—ABU HAMED TO KHARTOUM.

Little has been recorded of the actual navigation of the river and the description of its banks between Abu Hamed and Khartoum, and especially of the stretch between Abu Hamed and Berber.

Between these two latter places the desert is broken by numerous ravines and studded with acacias and "dom" palms; the river channel is full of reefs and rapids, and navigation is at all times difficult and somewhat dangerous; cultivation only exists in scanty patches, and the inhabitants are poor and few in number. The inhabitants and cultivation are, however, increasing on both banks.

Mograt Rapid. A couple of miles above Abu Hamed is the Mograt Rapid, consisting of a few miles of bad passages (at low Nile). After clearing the Mograt Rapid, the navigation of the river is unimpeded for about 32 miles, until Mero Island, opposite Abu Hashim, is reached.

Bagara Rapid. As an obstacle to navigation the Abu Hashim Rapid is unimportant, and from the Mograt Rapid there exists a reach of about 50 miles of practically open water to the rapid of Bagara.

The Nile here takes a bend to the west, and for the space of 2 or 3 miles the bed of the river is filled with masses of black rocks, in some places forming dams, over which the river roars in its swift descent (December). This rapid is passable at high Nile, but impracticable at low or even mean Nile.

The cataract of Bagara is not long, but during low or even medium water it is rather rapid.

The banks of the river present no features of interest, and the country on the eastern shore is an almost uninhabited desert, the usual "doms," which fringe the shore being the only vegetation to be seen, with here and there a scanty patch of cultivation; but, as the Bagara Rapid is approached, an improvement takes place on the western shore.

5th Cataract. The 5th Cataract, or Shellal el Homar, 24 miles from El Bagara, is a system of tortuous rapids running through irregular dangerous rocks. It is formed by a ridge of black rocks, broken up into islands, of which the main one is termed Draka. Here there are really two distinct cataracts—one to the north, which has two rather dangerous and difficult passages, in consequence of the banks being covered with brushwood rocks and mimosa trees, which prevent the tow rope being employed; the other to the south, called Shellal el Homar. These cataracts, like those that precede them, are dangerous and impracticable during low water.

They were successfully surmounted by the gunboats of the Nile Expedition in September, 1897 (high Nile).

From the 5th Cataract, where the Dar Robatab is quitted and the Dar Berber commences, a path exists on both banks for 30 miles to the town of Berber. About half-way the nature of the soil changes from the primitive desert to sandstone, and ranges of hills formed of the latter begin to show themselves on both banks, but more prominently on the western shore, where, opposite El Hasa, the edge of a stony plateau, about 100 feet high, known as Jebel Nakam, advances to within 200 yards of the water's edge; thence the road follows the western shore at a distance of about  $\frac{1}{4}$  of a mile, the intervening land being well cultivated and acacias and "dom" palms fairly abundant.

On the right bank, although a fringe of acacias borders the Nile, cultivation is almost entirely absent except in the immediate neighbourhood of the villages, which are met at frequent intervals; and the country, after entering the sandstone formation, consists of nothing but one vast desert plain extending as far as the eye can reach.

In view of the railway running the whole way along the river bank from Abu Hamed to Khartoum the description of the itineraries along the banks is omitted. The reader who desires such is referred to N.O. (pp. 63-70).

Berber. Berber, 131 miles from Abu Hamed (for description, *vide* Chap. III, p. 85).

Between Berber and the Atbara (20 miles) the cultivation improves, and a fairly broad band runs parallel to the east bank of the river; the inhabitants in this reach are fairly numerous.