

THE
SOURCES OF THE NILE.

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THE
SOURCES OF THE NILE:

BEING

A General Survey

OF

THE BASIN OF THAT RIVER,

AND OF

ITS HEAD-STREAMS;

WITH THE

HISTORY OF NILOTIC DISCOVERY.

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MDCCLX.

“ Nihil est quod noscere malim
Quam fluvii causas per sæcula tanta latentés,
Ignotumque caput.” *Juven.*

“ IS THERE ANYTHING WHEREOF IT MAY BE SAID, SEE, THIS IS NEW?
IT HATH BEEN ALREADY OF OLD TIME, WHICH WAS BEFORE US.”
Ecclesiastes.

PREFACE.

THIRTEEN years have elapsed since I wrote a Paper "On the Nile and its Tributaries," which was read before the Royal Geographical Society of London on the 28th December, 1846, and 11th January, 1847, and was printed in the seventeenth volume of the Society's Journal.

For some time previously our knowledge of the Upper Nile was in a state of transition. The three great Turco-Egyptian expeditions up the White River had taken place, and numerous Europeans had visited Abessinia and the adjacent countries, where some of them had resided several years; so that, looking to the amount and character of the information actually collected, our knowledge of the basin of the Upper Nile was almost as extensive and accurate as at the present day.

But the manner in which that important new matter had been digested and arranged, was far from corresponding with its intrinsic value. To show how widely

geographers and chartographers erred in their appreciation and use of the information standing ready to their hand, it is sufficient to refer to three maps of that period; namely—1st, “Carte du Bahr-el-Abiad dressée par l’Ingénieur d’Arnaud Bimbachi,” in the *Bulletin de la Société de Géographie*, 2 Ser., tom. xix., Paris, 1843; 2nd, *Uebersichts-Karte des oberen Nil-Landes*, von Carl Zimmermann,” in Professor Carl Ritter’s work “*Ein Blick in das Nil-Quelland*,” Berlin, 1844; and 3rd, “Map of Africa from the Equator to 30° N. lat., by James Macqueen,” accompanying an article on African Geography in “*Blackwood’s Magazine*,” (No. 344) for June, 1844.

These three maps, all professing to embody the latest and most correct information then available, (to which nothing essentially different or materially important has since been added, unless quite recently,) are here referred to, not for the purpose of commenting on any of their errors, but simply to exhibit the notions respecting the upper basin of the Nile prevalent in France, in Germany, and in England, about the time of my return from my three years’ travels in Abessinia, and previously to the publication of the results of my researches and enquiries into the hydrography of the Nile.

Since the appearance of my Paper of 1846, I have had the satisfaction of seeing the maps of the transition period of 1843 and 1844 gradually replaced by others based on the conclusions embodied in that Paper, or made known by me in subsequent communications to the scientific world.

The most interesting question therein discussed is as to the position and direction of the Mountains of the Moon. My hypothesis respecting these mountains was at first little more than a happy conjecture ; but, when once conceived, its reasonableness became more evident the further the subject was considered and investigated. Since its enunciation the various particulars of information from time to time collected have been diligently applied to test and, where requisite, to modify the results derived from my hypothesis ; and every additional fact has only served to confirm and establish its correctness.

The work now submitted to the public is based on my Essay "On the Nile and its Tributaries," and various subsequent Papers. The whole has, however, been remodelled, and many important particulars are now published for the first time. With reference to its preparation for the press, it is proper to remark, that, owing to my absence from England, I do not possess the means of reference essential to the due performance of my task. I have, therefore, had recourse to a friend in Europe, by whose kind and able assistance I have been enabled to bring up what I had written to the existing state of our general knowledge.

It was not till I had transmitted to him the whole of my manuscript (with the exception of the last chapter) that I received intelligence of the return to England of Captains Burton and Speke from their remarkable journey into Central Africa, and it is only within the last few days that I have read in the "Proceedings of the

Royal Geographical Society" the brief report of their discoveries. Whilst heartily congratulating the travellers, and in particular my friend Burton, on the successful accomplishment of their great undertaking, I need not dwell on the gratification which I have experienced in seeing the soundness of my hypothesis now at length established, so as to entitle it to be recognized as the true theory of the Sources of the Nile in the Mountains of the Moon.

The practical result of the adoption of this theory had been, even before those travellers' return, a total change in our conception of the main physical features of this quarter of the globe. The principal mountain-system of Africa is now found to extend from north to south, in proximity to the Red Sea and Indian Ocean, instead of running across the Continent from east to west, as shown in all maps, both ancient and modern, excepting only those recently constructed, in which the "Mountains of the Moon" are laid down in accordance with my views.

But a result far more important is, that we now know the reason why, during so many ages, the vast continent of Africa has remained, as it were, a sealed book; and why the efforts of civilized nations to establish relations with the interior of that continent have had so little success.

In January 1852, when directing the attention of one holding a high place in Her Majesty's Councils to the great disproportion which the commerce of Africa bears to that of the rest of the world, I remarked that :

—“ The arid and inhospitable character of the continent of Africa, its want of navigable rivers, and the barbarism of its inhabitants, have been alleged as causes for this strange anomaly. But (as I proceeded to explain), active as all those causes may have been and still continue to be, recent discoveries have shown that they are far from being true to the extent generally attributed to them ; for it is now demonstrated that Africa possesses fertile and genial regions, large rivers and lakes, and an immense population, which, if not civilized, is yet to a considerable extent endowed with kindly manners, humane dispositions, and industrious habits.

“ *The fundamental cause of the erroneous notions prevalent respecting Africa, is that Europeans have always approached that continent in a wrong direction.* Towards the north, the districts skirting the Mediterranean Sea are cut off from the other portions of the continent by the rainless sands of the great Desert ; towards the west, the climate truly exercises those baneful influences on European constitutions which have stamped their mark on the rest of the continent ; towards the south, the form of the peninsula, which there runs almost to a point, prevents ready access to the vast internal regions further to the north. On all these sides, however, have we during centuries persisted in our endeavours to penetrate inwards, while the east coast has been unattempted and remained almost totally unknown. And yet it is in this direction that the interior of intertropical Africa is approachable with the greatest facility.

“Of the physical character and climate of Eastern Africa a general outline is given in my “Essay on the Nile and its Tributaries;” and I cannot do better than repeat, on the present occasion, the concluding remarks there made on the subject:—‘This survey of the physical character of the plateau of Eastern Africa cannot be concluded without special attention being directed to a most important practical result which it affords. It is, that the eastern coast of that continent presents facilities for the exploration of the interior very superior to those possessed by the western coast. For, when the narrow belt of low land along the shores of the Indian Ocean—which, from its general dryness, arising from the absence of large rivers, is far from unhealthy at most seasons of the year—is once passed, and the eastern edge of the elevated table-land is attained, a climate is met with which is not merely congenial to European constitutions, but is absolutely more healthy than that of most countries. I speak from the experience of upwards of two years passed on the high land under circumstances anything but favourable. Here,—that is to say, on the edge of the elevated plateau, and not in the low desert country along the sea-coast,—settlers might take up their permanent residence, without apprehensions as to the effects of the climate at any period of the year; while travellers might wait in safety, and even with advantage to their health, till suitable opportunities should present themselves for penetrating westwards into the interior; and, in the event of their having to retrace their steps,

they would only return upon a healthy and delightful country, where they might remain till the proper season should arrive for their journey down to the coast. On the other hand, the climate of the western coast, even far inland, is notoriously such, that few can long withstand its baneful influences; while a traveller is necessitated to press forwards, whatever may be the time of the year, whatever the condition of the country, whatever even his state of health. And should he, from sickness or any other unforeseen circumstance, be compelled to abandon his journey, he must do so with the painful knowledge, that the further he retrogrades the more unhealthy are the districts which he has to traverse, and the less likelihood there is of his ever reaching the coast, more fatal than all the rest.'

“Hidden as these truths seem to have been to the moderns generally,—except perhaps to the Portuguese, who may have had their reasons for concealing them,—they would appear to have been sufficiently well known to the ancients. Arrian's *Periplus* records the existence of numerous *emporion* or commercial ports along the eastern coast of Africa, both within the Red Sea and beyond the Straits of Bab-el-Mandeb, in which ports the products of the interior of Africa were exchanged against manufactured goods of various descriptions brought from Egypt and India. And the learned researches of the historian Heeren plainly prove the existence, during the earlier ages, of an extensive and lucrative commercial intercourse between the countries of southern Asia and Africa:—between India and

Arabia, Ethiopia, Libya and Egypt ; the principal seat of this national intercourse for Africa being Meroë, and its principal route being still pointed out by a chain of ruins, extending from the shores of the Indian Ocean to the Mediterranean ;—Adule, Azab and Axum being links of this chain between Arabia Felix and Meroë, while Thebes and Ammonium were the like between Meroë, Egypt and Carthage.

“ Heeren’s hypothesis is that the ruins which are still found existing at Azab, Adule, Axum and Meroë, are not those of cities, but rather of extensive places of trade, adorned with temples and appropriated to caravans, and that their origin is to be attributed to the necessity for some spiritual protection of commerce against the marauding habits of roving barbarians ; whence mercantile transactions were usually conducted in the vicinity of temples, and sometimes even within their walls. And his grand conclusion, so interesting (as he contends) and important for human nature and its history, is that *the first seats of commerce were, also the first seats of civilization* ; the exchange of merchandize leading to the exchange of ideas, so that by this natural friction was first kindled the sacred flame of moral and intellectual culture.

“ Though I am bound to confess that I cannot agree with that historian in all his views, yet I will not think of denying the intimate connexion which has always existed in those regions between commerce and religion. Heeren not unaptly remarks that Mecca remains still, through its holy sanctuary, the chief mart for the com-

merce of Arabia ; and he pointedly asks :—‘ What are the great caravans of pilgrims, who journey thither from Asia, but *trading* caravans ? And are not the fairs which depend upon their arrival the greatest in Asia ? ’

“ As regards Africa, the fact is indisputable—and it is one which is pregnant with inferences—that *the greatest movement of the population is from west to east and from east to west* ; pilgrims from the remotest regions of Western and North-western Africa traversing the entire breadth of the continent, on their way to and from the Caaba and the tomb of their prophet and law-giver. And this, indeed, is the road which has unalterably been trodden during countless ages ; for it existed long before the time of Mohammed, who merely dedicated to the worship of the one true God the world-renowned fane of the idols of the Sabæans.

“ The pilgrims who frequent Mecca are almost of necessity merchants, trading from place to place often as the sole means of enabling them to perform their journey. . And it is by the same simple means that the Mohammedan religion has attained its great development throughout Central Africa ;—not by any zealous and expensive, or indeed intentional, propagandism, but by the casual communication between these Moslem merchant-pilgrims and the rude Pagans through whose countries their route happens to pass. The strict outward devotional forms of the Mohammedans, and their constant mixing up of religious invocations in the ordinary processes of life, are no doubt mainly instrumental in bringing about those results.

The great faculty of improvableness in man renders him essentially imitative ; and we find in M. Ferdinand Werne's ' Expedition to discover the Sources of the White Nile ' a striking instance of how the first step towards the conversion to Mohammedanism of the Pagan inhabitants of the valley of the Nile was unconsciously taken by the crews of the vessels belonging to the expedition. That traveller says (p. 249) :— ' Yesterday evening, as the natives walked along by the side of our men, whilst towing the vessels, they sang in concert with them the everlastingly repeated exclamation, *Yu Mohammed !*' Has it not, alas !, too often happened that the well-intentioned exertions of Christian Missionaries have been unable to produce a much greater effect than that which here unconsciously resulted from the chaunt of ignorant men, probably themselves but one step further removed from paganism, and whose entire knowledge of their professed religion consisted of little more than the repetition of the formula—' There is no god but God, and Mohammed is the prophet of God ! ' ”

The explorations and discoveries of Barth, Livingstone, Burton, Speke, and others, have proved the soundness of the opinions thus expressed. Now that so energetic and extensive a movement is making in favour of Africa, I gladly avail myself of this opportunity to repeat what I then said, and to recommend it to the serious consideration of the British merchant, not less than of the Christian missionary and philanthropist, and indeed of every one desiring the improvement,

both temporal and spiritual, of the millions and tens of millions of our fellow-creatures hitherto so little known, and who, where known, have for the most part been injured and debased, rather than benefited and ameliorated, by the contact of their civilized brethren.

Belvedere, Mauritius,

10th October, 1859.

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THE
SOURCES OF THE NILE.

CHAPTER I.

THE NILE AND ITS TRIBUTARIES.

It is without parallel in geography that the sources of a river, on the main trunk of which one of the earliest and most renowned civilized communities was so long seated, should during so many centuries have remained in almost their pristine state of obscurity. The want of success in exploring the upper course of the Nile is attributable, no doubt, to the enormous length of the river, to the excessive difficulties which beset the traveller from the physical character of the countries through which it flows, and to the jealousy, ignorance, and low state of civilization of the inhabitants of the regions in which its head-streams have their rise. But, whatever the cause, the familiar expression of the ancients, "*Nili querere caput*," as denoting the futility of any undertaking, is still as applicable in its literal sense as when first uttered.

Yet, long as the proverb has retained its force, the

time has come when this opprobrium of geography must be removed. The rapidity of transit to all parts of the world is increasing day by day ; travellers of all nations are numerous where half a century ago the foot of civilized man had never or seldom trod ; Europeans are penetrating into every region ; and it is not to be imagined that the basin of the Nile to its uttermost bounds will long remain unexplored, or that its hidden secrets will not soon be laid bare, and its countless treasures rendered available to the use and enjoyment, not less of the inhabitants yet unconscious of their value, than of their fellow-men throughout the whole earth.

In anticipation of and preparatory to that most desirable result, it is important that we should ascertain precisely what has already been done towards the solution of this great geographical problem, the discovery of the source of the Nile. By this is not meant any particular source or spring, as being especially and exclusively the true head of the river of Egypt. The basin of the Nile is still too imperfectly known to allow us to decide even the direction in which the head of the river lies hidden ; and until we are in a position to determine this, it is premature to speak of *the source* of the Nile. Our object should therefore be, in the first instance, to remove all obstructions and impediments arising from erroneous or imperfect information, incorrect interpretation of authorities, and other sources of error ; and this will best be done by disregarding all speculations and mere opinions, however great their

authority may be, and looking simply to facts respecting the various head-streams of the Nile and the physical character of that portion of the African continent which contains them, as those facts are known to us from the information collected and recorded by travellers and investigators,* whether of ancient or of modern times.

When we shall have laid down and established this firm basis of facts, we shall be in a position to ascertain how the knowledge of these facts has been acquired, and to arrange and combine our knowledge respecting the Upper Nile in a harmonious whole, with which it will always be an easy task to incorporate whatever additional particulars may be from time to time obtained. And when at length the limits of the hydrographical system of the Nile shall have been fully and accurately determined, and the principal arms which unite to form the main stream, together with their various tributaries, shall have been traced to their heads, we shall then be in a position to decide which of these numerous ramifications has the fairest claim to be regarded as the true head or source of the Nile; and then, but not till then, the proverb will have lost its force and application.

In speaking then of the sources of the Nile, I must be understood to use the expression in the most general sense, as meaning all the head-streams that take their rise at the extreme limits of the basin of that river, along the water-parting* between it and the con-

* The term "water-parting" is used instead of the usual expression "water-shed," for the following reason. The line

terminous basins of other African rivers flowing towards the Red Sea, the Indian Ocean, the Atlantic, and the Mediterranean, or (as in the case of some Asiatic, American, and also other African rivers) forming separate inland hydrographical systems unconnected with the ocean. And it is in this sense that I propose to examine the tributaries and the basin of the Nile, with a view to the eventual discovery of its sources.

For a distance of more than thirteen hundred geographical miles from the Mediterranean, into which it discharges its waters by several mouths, this mighty river, the largest of the African continent, and probably unsurpassed in length by any river in the whole world, is a single stream. Fed by the copious rains of the tropics collected by its innumerable head-streams in

of division and separation between the contiguous basins of two rivers, called by the ancients *divortium aquarum*, the parting (or flowing in opposite directions) of the waters, is in German called *die Wasserscheide*, which means literally the same. English geographers, following the example of geologists, have adopted the expression "water-shed," which is evidently a corruption of the German *Wasserscheide*, and was probably first introduced among us by miners from Germany. The term is however objectionable, because to the mere English scholar it appears to be a native compound of the words "water" and "shed," as if meaning that the water is shed in opposite directions, and hence leads to the belief that the side of the basin of a river, rather than the division between the adjoining basins of two rivers, is intended. In fact the expression has of late years been frequently used in that sense. The substitution of the term "water-parting" renders the idea intended to be conveyed intelligible to all, and exactly expresses the Latin *divortium aquarum* and the German *Wasserscheide*.

the south, it is able to contend with the burning sun and the scarcely less burning sands of Nubia and Egypt throughout this extent of country, without the aid of a single tributary; — a phenomenon presented by no other river.

A peculiarity of the Nile scarcely less singular, is that for upwards of six hundred and fifty geographical miles above the point just mentioned, or in all full two thousand miles from its mouths, the river receives no affluent whatever on its left or western side. On its eastern side, however, within the same limits, it receives three tributaries, the Atbara, the Bahr-el-Azrek or Blue River, and the Sobat or Telfi, having their origin in the elevated table-land of Abessinia.

The first of these rivers, the Atbara, or Asbarrah as the name is written by M. Linant, is also called Bahr-el-Mokadah as coming from Abessinia, which country, including the mountain districts of the Gallas, is known by that name among the inhabitants of the lower regions of Atbara and Sennar. It is likewise named Bahr-el-Aswad or the Black river, from the quantity of black earth brought down by it during the rains, which is so great as to affect the colour of the Nile. This branch is most important, because it contributes the largest portion of the slime which manures and fertilizes the land of Egypt. At about two days' journey up its stream, the Atbara receives on its right bank its first tributary, the Mogren, which takes its rise in the Bishariyeh Mountains towards Suwakin. Further south, near Koz-Radjeb, it receives, or used to receive,

during the rains a portion of the waters of the Khor-el-Gash, which stream affords an instance of the remarkable natural phenomenon of the bifurcation of a river high up its course, as exemplified in the Cassiquiare of South America, which unites the river systems of the Amazons and Orinoco.

The Khor-el-Gash originates in the neighbourhood of Dobarwa in Hamasien, a district of Northern Abessinìa, close on the eastern édge of the Abessinian tableland, where it is known as the Mareb. This stream, which in the dry season ceases almost if not entirely to flow, spreads its waters during the rains over the flat country of Taka or El-Gash, of which the sink is at Fillik, at the north-western extremity of the same. Here the waters when at their highest find two outlets; the one being north-west towards the river Atbara in the general direction of the Mareb or Khor-el-Gash itself, which may consequently be regarded as a branch of the former river; whilst the other outlet turns off north-eastwards to the Red Sea near Suwakin.

To the east of the Khor-el-Gash is another similar water-course, called Khor-el-Baraka, which drains the district of that name, and with which the Ansaba, the Lidda of Abessinìa, unites. The basin of the Khor-el-Baraka has within the last few years been extensively explored and described by two German travellers, M. Werner Munzinger and Baron Theodor von Heuglin. According to a previous traveller, M. Ferdinand Werne,* the Khor-el-Baraka *bifurcates twice*; but in each case

* "Feldzug von Sennaar nach Taka," &c., p. 250.

only to unite with the Khor-el-Gash. I give this latter name to the joint stream, but without pretending that it is the correct appellation.

Whether at the present day any of the waters of the Khor-el-Gash actually reach either the Atbara or the sea is not certain. That they did so formerly is manifest from the assertion of the geographer Artemidorus, to whose evidence I shall in the sequel have occasion to refer more particularly;* and it is probable that when at the highest they do so at the present day. But the almost total annihilation of the forests in the upper country has naturally caused a great diminution of water; added to which, considerable geological changes have taken and are still taking place along the shores of the Red Sea; the most important being a gradual uprising of the coast on the African side, by which the courses of many streams are materially affected.

That part of the coast where a portion of the waters of the Mareb or Khor-el-Gash used to enter, and perhaps at times still enters, the Red Sea, is thus described by Captains Moresby and Elwon of the Indian Navy: — “From Ras Assease [in $18^{\circ} 24'$ North latitude,] the coast runs N. 53° W. 14 miles to a projecting point of the coast, and from thence N.W. by W. $11\frac{1}{2}$ miles to Ras Muedum. The land all along the coast from beyond Ras Assease is a very low sandy shore, with a layer of soft mud beneath

it, and continues of the same description several miles inland.* Such a description can only be applicable to a river estuary, or what formerly was one.

Bruce, in his account of the voyage which he professes to have made from Cosseir to the Emerald Island in March 1769, says:—"My design, was to push on to the river Frat, which is represented in the charts as very large and deep, coming from the continent; though, considering by its latitude that it is above the tropical rains (for it is laid down about latitude $21^{\circ} 25'$), I never did believe that any such river existed."† And he proceeds to explain how he was induced by the pilot of his boat to abandon this design, for that "Frat, which I wanted to see, was immediately opposite to Jidda, so that either a country or English boat would run me over in a night and a day."‡ If, however, as seems now generally admitted, this voyage from Cosseir to the Emerald Island was an imaginary one, it will be unnecessary to dwell on the alleged statement of the pilot as to the position of the "Frat." In Bruce's large map a river of that name is laid down as entering the sea in about 22° North latitude; but the chart of the East India Company's surveyors shows no traces of anything of the sort; and there can be little doubt that this "Frat" was merely intended to represent the river described by Artémidorus.

* "Sailing Directions for the Red Sea," p. 162.

† "Travels" (3rd edition) vol. ii. p. 115.

‡ Ibid. p. 116.

Returning to the consideration of the Atbara, it has to be remarked that in Abessinia the TÁkkazyé is regarded as the upper course of that river; and were the volume of its waters and the testimony of the inhabitants of its banks to be accepted by geographers as conclusive, it must undoubtedly be so considered. But the direct continuation of the Atbara coming from the south seems to be the Gwangwe or Goang, which, with the Angrab, called by the Arabs Basalam, has its sources in the high country to the north and north-west of Lake Tsana. The TÁkkazyé, called Setit by the Arabs, joins the direct stream of the Atbara in about 14° North latitude, having its head-streams along the edge of the table-land between the fourteenth and twelfth parallels, in the provinces of Angot and Lasta. On its right bank its principal affluent is the Tselari, which has some of its sources in the vicinity of the lake of Ashangi, called by the natives Tsado Bahri or the White Sea; while on its left bank is the Bellegas, which in part conveys to it the waters from the snow-capped mountains of Samien. The western limits of the basin of the TÁkkazyé extend to about the thirty-eighth meridian, where it is bounded by the systems of the Angrab, Lake Tsana, and the Abai.

Leaving the Atbara at its junction with the Nile, we follow the main stream of the latter southward for upwards of 160 geographical miles, to arrive in latitude 15° N. at Khartúm, the modern capital of the Turco-Egyptian territories in Bellad-es-Sudán—the Black or Slave Countries,—which city is situate at the confluence

of the Bahr-el-Abyad and Bahr-el-Azrek, the White and Blue Rivers. Proceeding up the right bank of the latter, we come first to the Rahad, called Shimfa by the Abessinians; a considerable river, having its sources in the high country to the west of Lake Tsana, and its general direction being from S. S. E. to N. N. W. At a short distance to the south of the Rahad, and running nearly parallel with it, is the Dender, also a large river. Above the confluence of the Dender the Blue River has been ascended to about the eleventh parallel, and as far as its course has been traced it runs in a direction almost north and south. In $11^{\circ} 30'$ North latitude, Caillaud places, on hearsay, a river named Hessén, coming from the south-east and joining the Bahr-el-Azrek on its right bank, which river was described to him as being as large as the Dender. This river Hessén, from various considerations, stated at length in the seventeenth volume of the "Journal of the Royal Geographical Society," I have identified with the Abai of Abessinia, which has generally been regarded as the upper course of the Blue River; and I look on the Dedhesa as the continuation of the direct stream of the latter.

The circular course of the Abai round the peninsula of Gódjam is too well known to require more than a passing allusion. While forming this curve the river is joined by numerous streams, having their sources in the mountains which form the core of the peninsula, and which, in the absence of any generic native name, I have called Tálba Waha, such being the native appellation of the most elevated and best known portion of

the range. It is unnecessary to particularize these tributary streams, all of which are laid down in the map contained in volume 14 of the "Journal of the Royal Geographical Society."

The source of the Abai—the Nile of the Portuguese Jesuits and of Bruce—will form the subject of some observations in a later portion of this work.* Leaving it for the present, and proceeding along the left bank of the river, we arrive at Lake Tsana, also called the Lake of Démbca, from being situate in that province, through the southern extremity of which the Abai passes, its current being distinctly visible across the waters of the lake. About fifteen miles lower down we reach the Alata, a small tributary, inconsiderable in itself, but entitled to particular notice on account of its proximity to the cataract of *Tis Esāt*, or "the Smoke of Fire," which Europeans, from Father Jerome Lobo downwards, have styled the cataract of Alata, after this smaller stream.

The first river of magnitude falling into the Abai on its left bank, after it has left the lake, is the Bashilo, the recipient of the waters of the province of Amhára. Its sources are at the extreme eastern edge of the table-land, not far from those of the Berkona and Milli, two tributaries of the Hawash, which river does not belong to the hydrographical system of the Nile, but flows east towards the Indian Ocean. To the south of the Bashilo is the Djamma, one of the largest tribu-

taries of the Abai, conveying to it the whole of the waters of Shoa and Tegulet, as far as the western flank of the mountains of Ifat or Efat. Of its tributaries the chief is the Wanchit, called Anacheta by the Portuguese.

South of the Djamma is the Múger, or Mógar, which springs from the lofty mountains of Salála, on the opposite flank of which are some of the sources of the Hawash. Where the Abai is joined by the Múger, the former river has already quitted its southward course, and taken a westerly and afterwards north-westerly direction along the provinces of Gódjam, Damot, and Agaumider, as far as $10^{\circ} 30'$ North latitude. There, under the name of Hessén, it joins the Bahr-el-Azrek, or Blue River; of which, as already stated, the direct upper course is the Dedhesa.

This river has its sources in or near the country of Enarea, in the neighbourhood of those of the Gaba and Baro on the one side, and of the Gibbe and Godjeb on the other; all belonging to the hydrographical system of the Sobat or Telfi, as will be shown in the sequel. There is a noted ford over the Dedhesa, called Melka-Kwoya, on the caravan road to Tunhe, whence is brought to the market of Baso in Gódjam the *Koraríma*, called by the Arab traders *Kheil*—the “Chele” of Ruppell,—a sort of cardamom which is exported from Massowah to India in some quantity, and to which the late Dr. Pereira, in the third edition of his “*Materia Medica*” (vol. ii., p. 1138), has given the name of *Anomum Koraríma*. The country on the left bank of

the river bears the generic designation of Wallegga among the numerous independent Galla tribes scattered over it, and consists of vast grassy plains extending westwards as far as the Sobat. These plains are the elephant-hunting grounds of the Gallas of Guderu, who bring the ivory for sale to Baso, whence it is carried to Massowah for export to India and Europe.

In $10^{\circ} 14'$ North latitude the Bahr-el-Azrek receives on its left bank a perennial stream of considerable size, which bears in our maps the name of Yabus. By Russegger the name is written Inbuss, and by my Galla informants it was pronounced Dabús. All these are merely different forms of the word "N'bus," commencing with an indistinct nasal sound; such being the native name among the Shankalas or Berta negroes, whose pronunciation is very thick and inarticulate, so as scarcely to be represented by any written characters.

About sixty or seventy miles below the N'bus, the Bahr-el-Azrek is joined by the Tumat, a river of less importance. Below the Tumat we do not meet with any affluent deserving of notice, till we again arrive at the confluence, at Khartúm, of the Blue with the White River, which latter next claims our attention,

The general direction of the Bahr-el-Abyad or White River is a little to the west of south as far as the ninth parallel of North latitude, where it turns almost due west. Between 11° and 10° North latitude the Bahr-el-Abyad is shown in the maps as receiving two streams from the east, named Pipar and Djall, which are supposed to have their sources in the proximity of those

of the Tumat ; unless they are mouths of the Sobat, of which the main stream joins the Bahr-el-Abyad in $9^{\circ} 10'$ North latitude.

This third great tributary of the Nile, called also Telfi, Ta, Bahr-el-Makadah, or River of Habesh, is of great magnitude, and is said to contribute to the river nearly a moiety of its waters. Its course is laid down by M. Brun-Rollet from native information as far as 4° North latitude, where it turns eastwards and then northwards, having its source in 7° North latitude on Mount Himadou, in the country of the Gallas. M. Hansal states that the water of the Sobat is *white*, so that it has a better claim to the designation of Bahr-el-Abyad or "White River" than the main stream itself ; which might with more propriety be called the "Black" River, on account of the colour of its filthy, stagnant, unwholesome water. Remarkably enough, the Sobat is the "White River" of Russegger, who describes it from native information as rising in the Galla mountains, as running from east to west as far as the country of the Dinkas, and as there turning northwards and descending to Khartúm ;* a description nowise applicable to the Bahr-el-Abyad of the Turco-Egyptian expeditions. The upper part of the Sobat bears the name of Shol, and is said to receive on its right bank, in 7° North latitude, a tributary named Kalya, having a course nearly parallel with that of the Shol itself. The Godjeb is another tributary of the Sobat, if it be not indeed the upper course of that river.

* See "Journal of the Royal Geographical Society," vol. xvii., p.41.

The source of the Godjeb or Uma is supposed to be in about 7° North latitude and $35^{\circ} 30'$ longitude east of Greenwich; and the river, after proceeding to the eastward and southward, encircling the kingdom of Kaffa with the countries of Woratta, Kullo, Gobo, and Suro, of which together it forms a peninsula, takes a course westward and afterwards northward to join the Sobat. To the east of Kaffa the Godjeb is joined by a river, which was known to the Portuguese by the name of Zebec, but which is now called Gibbe by the Galla tribes: indeed they give that name to three distinct rivers; the first rising in Further Djimma (Djimma Kaka), the second in Enarea, and the third in Hither Djimma (Djimma Tibbye); all three of them having their sources in the vicinity of those of the Dedhesa and its affluents. Along their left or eastern bank the Gibbe and Godjeb, like the Tákkazyé and Abai, receive various tributaries, having their sources at the eastern edge of the Abessinian table-land; and in like manner within its curve, that is to say along its right bank, the Godjeb receives other tributaries. On a comparison of evidence (somewhat conflicting it is true), it would also appear that along the course of the Godjeb there is a large lake, or a series of lakes or marshes.* But until the basin of this river has been properly explored, nothing positive can safely be said respecting it or any of its affluents.

Returning to the junction of the Sobat with the direct stream of the Bahr-el-Abyad, we follow upwards the

* See "Journal of the Royal Geographical Society," vol xvii., p. 62, and the map in vol. xiii. of the same journal.

course of the latter, which continues in a direction almost due west, till in about 29° East longitude we come to a lake, to which the names Birket-el-Ghazal and Lake No have been given, from fifteen to twenty miles in diameter, formed by the junction of two large rivers; the one, called Tubiri or Khurifry, entering it from the south; the other, known as the Bahr-el-Ghazal or Keilak, which joins it from the west. Above the junction the general direction of the Tubiri, which is regarded as the continuation of the Bahr-el-Abyad, is nearly S. S. E. Along its entire course, as far as it was explored by the Turco-Egyptian expeditions, the river is free from cataracts, but has occasional shallows; winding among marshes and swamps, which are in part the beds of water-courses entering the main stream during the rains.

In $4^{\circ} 42' 42''$ North latitude and $31^{\circ} 38'$ (?) longitude east of Greenwich, a ridge of gneiss, running from east to west directly across the stream, arrests further progress up the Tubiri. But above this, the river has again been navigated as far as the fourth degree of North latitude, where another rapid is met with, which can only be passed during the rains. Here the Tubiri is still a large stream, averaging more than 200 yards in breadth and two or three yards in depth. Beyond this the river is said to come from the south-east, its sources being in the mountains of Komberat, south of the equator. Another arm, according to the Barry negroes, comes from lofty mountains, said to lie beyond the country of the Fondangos, a dark but not a negro

race, dwelling several days' journey to the south of Komberat. All this is hearsay, and must consequently be received with due allowance. It may be added that M. Ferdinand Werno, when at the extreme point reached by the third Turco-Egyptian Expedition, was informed that the river continues a month's journey further south before reaching the country of Anyan.

During the last two years Captains Burton and Speke of the Indian Army have been engaged on a most interesting journey to the great lakes of Eastern Africa, from which they have just returned, their perilous enterprise having been crowned with complete success. The full particulars of their journey have yet to be made public ; but sufficient is known to enable me to state here, that leaving Zanzibar, the travellers proceeded westward over a low alluvial plain, till they reached the coast-range of mountains, which they compare to the Western Ghauts of India, and of which they ascertained the maximum altitude, where they crossed, to be about 6000 feet. On the western side of this longitudinal range, they came to an elevated plateau, an almost dead flat, ranging from 3000 to 4000 feet above the sea. Proceeding onwards they arrived at the Tanganyika Lake, called by the Arabs Ujiji, which they describe as lying in a synclinal depression, its elevation being only 1800 feet above the sea, whereas the surrounding plateau averages from 3000 to 4000 feet. This lake is encircled at its northern extremity by a half-moon shaped range of hills, of the estimated height of 6000 feet or more, which by some strange mis-

apprehension of the geographer Ptolemy's description of the *snowy* "Mountains of the Moon," Captain Speke identifies with those mountains.

After exploring this lake, the travellers returned to Unyanyembe,* in 5° South latitude, and 33° East longitude. Here Captain Burton was detained by severe illness, whilst his companion made a rapid march due north, as far as $2^{\circ} 30'$ South latitude, where he discovered the southern extremity of a second lake, Nyanza, called by the Arabs Ukrewe, the altitude of which Captain Speke makes to be about 4000 feet. The question whether or not these two lakes are connected with the Nile will be considered in the eighth chapter.

Having traced the White River as far southwards as practicable, while following its right or eastern bank, we have to return along its western bank as far as $7^{\circ} 30'$ North latitude, where it is joined by a large branch called Modj or Souri, which runs parallel with the main stream at a distance of three or four days' journey. In $9^{\circ} 20'$ North latitude we come again to the great western branch, known as the Bahr-el-Ghazal or Keilak, but which by the natives is called Nam-Airth. This river has been ascended three days' journey (25 to 30 leagues) in a westerly direction from its confluence with the lake, and is found to divide there into two arms; the one from the west having the appearance of an extensive lake, while the other, which

* Can this name *Unyanyembe* have any connexion with the Anyan of M. Werne?

is supposed to be the principal, comes from the south. This latter has been ascended as far as Dar Benda, by M. Brun-Rollet or M. Vayssière, the only Europeans who have explored these hitherto unknown regions. The further westward course of the Bahr-el-Ghazal has not been traced; but the river is asserted to be as large as the Tubiri itself, and from native information it would seem to have branches coming from the south-west, the west, and also the north-west. When Dr. Barth was in Adamawa, he heard of a river called Ada, flowing eastward in about 8° North latitude and 24° East longitude, which can only be a tributary of the Nam-Airth. M. Jomard in his "Observations sur le Voyage au Darfour" of Sheikh Mohammed el Tounsy, describes, on the authority of M. König, a river named Amberkey as being a branch of the Gula or Kula. This must also be an affluent of the Bahr-el-Ghazal, if not the river described by Dr. Barth. Mohammed el Tounsy himself speaks of a large river named Baro running to the west of Darfour, which in like manner must be an affluent of the Bahr-el-Ghazal. But we are still almost entirely wanting in trustworthy information respecting the whole of the western tributaries of the Nile.

In Nubia and Egypt, as is well known, the basin of the river consists of little more than the bed of the stream.

CHAPTER II.

THE BASIN OF THE NILE.

THOUGH the various head-streams of the Nile have thus been enumerated, our knowledge of the precise limits of the basin of that river southward of about 16° North latitude is so imperfect, with the exception of a portion of the eastern edge of the Abessinian table-land which has been explored by Europeans, that, in order to fix those limits with something approaching to precision, it is necessary to investigate the several other hydrographical systems of the African continent continuous with that of the Nile, so as to determine the water-parting between them and the basin of the latter river. If, in the present state of our knowledge, we cannot precisely fix the position of that water-parting, we may at all events lay down a boundary beyond which it does not extend, and beyond which consequently the sources of the various streams which unite to form the Nile are not to be sought.

The eastern limit of the basin of the Nile must be taken as commencing from the isthmus of Suez, consisting of a tract of desert country lying between the river and the Red Sea, and presenting no point of great

elevation, though gradually increasing in height as it extends southwards, in correspondence with the elevation of the bed of the Nile itself. At Mukheirriff, a few miles below the confluence of the Atbara, the elevation of the bed of the river is 1082 English feet above the Red Sea, from which it is distant only about two hundred geographical miles, there being in the intervening space no land of any considerable relative elevation. Along the whole eastern side of this tract of country we meet with nothing but *wadies* or winter-brooks, having their course towards the Red Sea, none of which are of sufficient importance to deserve special mention.

About one degree to the south of Mukheirriff begins the remarkable country of Taka already described,* the level of which can be little above that of the bed of the Nile in the same latitude. In Taka, as has also been shown, is the division or divarication—not separation or water-parting—of the waters of the Mareb or Khor-el-Gash; one half of them flowing towards the Nile, and the other half towards the Red Sea.

To the south of Taka the anticlinal axis between the Nile and the Red Sea rises rapidly, till it attains an elevation of 7000 or 8000 feet above the level of the ocean, forming the commencement of the great plateau or table-land of Eastern Africa.

The ascent from the sea up the eastern slope is abrupt and of limited extent, so that the streams flowing down it are necessarily of secondary importance. Southward of the Mareb or Khor-el-Gash, the only watercourses

* Feldzug von Sennaar nach Taka, &c., p. 250.

having pretensions to the name of river are the Milli and the Hawash, which between them drain the entire eastern flank of the table-land from the thirteenth to the ninth degree of North latitude, but do not reach the gulf of Aden, losing themselves in Lake Abhebbad and other smaller lakes and marshes, which water the fertile country of Aussa. The waters of Lake Abhebbad are fresh; but between it and Tadjurrah is a salt lake named Assal, remarkable like the Dead Sea for its depression below the level of the ocean.* This fact was first ascertained by me on Christmas-day, 1840, when I estimated the depression at 760 feet. Since then Lieutenant Christopher and M. Rochet have respectively made it 570 feet and 714 feet by barometrical observations. These two lakes, Abhebbad and Assal, were known two thousand years ago to Artemidorus, who when speaking of the country immediately outside of Babel Mandeb, says: "On this coast there are two very large lakes, extending as far as the promontory Pytholaus. One of them contains salt water, and is

* See *Journal Roy. Geogr. Soc.*, vol. xii., p. lxxi., 101. My brother was the first, in 1837, in company with Mr. G. H. Moore, to discover and approximatively measure the depression of the Dead Sea, which they were also the first to navigate; they having carried a boat from Jaffa, by the way of Jerusalem to Jericho, and launched it on the waters of the Dead Sea on the 29th March, 1837. (See *Journal Roy. Geogr. Soc.*, vol. vii., p. 456; and *Allgemeine Zeitung* of 29th March and 11th June, 1838.) It was the knowledge of this depression of the Dead Sea which led me to suspect that Bahr Assal might, in like manner, be below the level of the ocean.

called a sea ; the other fresh water, and is the haunt of hippopotami and crocodiles.”*

The next river in succession to the Hawash is the Doho, Wabbi-Shebeyli or Haines's River, which has some of its sources on the eastern edge of the Abessinian table-land, and others in the mountain country of Hurrur or Harar. This river likewise has no outlet into the Indian Ocean, but passing along the coast behind Makdishu and Brawa, is lost in Lake Balli, within one degree north of the equator.

As far as about the ninth degree of North latitude the basin of the Nile is thus well defined, being shut in by the conterminous basins of the Milli and Hawash and of the Wabbi. Before proceeding to the consideration of its limits further south, it may be well to take a general survey of the great table-land of north-eastern Africa.

It is only of late years that the true character of the elevated regions commonly known by the generic designation of Habesh or Abessinia has been ascertained. Formerly this country was imagined to consist of a succession of terraces rising one above the other, the lowest being near the Red Sea and the highest in Enarca, where the water-parting between the Nile and the rivers running towards the Indian Ocean was supposed to exist. Dr. Rüppell was the first to demonstrate the erroneous nature of this opinion. From his section of the country between the Red Sea at Mas-sowah and the Upper Bridge over the Abai, which was published in the *Monatsberichte* of the Geographical

* Strabo, book xvi., c. iv., § 14.

Society of Berlin, it is manifest that so far from the land rising in terraces as it recedes from the coast, its summit line is on the seaward side, and that the general fall of the land is towards the interior. When in Abessinia I was enabled to continue Dr. Rüppell's section from north to south as far as the extreme southern bend of the Abai at Melka Furi in about 10° North latitude, and also to draw an east and west section from Tadjurrah in 43° East longitude to Bandja in Agaumider, in about $36^{\circ} 30'$ East longitude, not far from the valley of the Abai in that direction.

From these sections, which, together with one from the Tákkazyé to the Goang or Atbara by Baron Th. von Heuglin, are given in the plate facing this page, it appears that at Halai, at the summit of Mount Taranta, not more than eighteen geographical miles from Zulla (Adule) near Massowah, the edge of the table-land has an absolute elevation of 8625 English feet, which gives a rise of 1 in 12,7, — equal to an angle of $4^{\circ} 30'$ — to the eastern slope of the table-land, or (as it may be more correctly called) broad mountain-chain of Abessinia. On the other hand, we find that at Khartúm, at the junction of the Blue River with the Nile, in nearly the same latitude as Halai, and at a distance of about 420 geographical miles from that place, the elevation of the Nile is 1188 feet above the sea. Hence the fall in that direction is only 1 in 343,7, which gives $10'$ as the angle of the western counter-slope towards the interior of the continent. Consequently, on a line along the fifteenth parallel of North latitude, the eastern slope of

the Abessinian mountain-chain towards the sea is to the western counter-slope towards the Nile as 29 to 1. This proportion may perhaps be rated too high in consequence of being estimated on a direct line from east to west, instead of on a line corresponding with the courses of the principal rivers from south-east to north-west. We possess, however, the means of determining the proportion in this direction also. Khartúm, at an elevation of 1188 feet, lies very nearly to the north-west of Melka-Kuyu, the ford over the Hawash on the way from Tadjurrah to Shoa, where the absolute elevation of the river is about 2200 feet. The height of the eastern edge of the table-land on the summit of the Chakka mountains behind Ankóbar, the capital of Shoa, which is not far out of the direct line between Khartúm and Melka-Kuyu, is 9000 feet; and as this spot is thirty-eight geographical miles from Melka-Kuyu, we have a rise of 1 in 38,⁸³ for the eastern slope, equal to an angle of $1^{\circ} 41'$. On the other hand, the distance from the summit of the Chakka mountains to Khartúm being about 590 miles, the fall of the counter-slope is 1 in 460, equal to an angle of $7' 30''$; so that the proportion of the two slopes is as 11,⁸ to 1.

It will be observed that in the latter of these estimations the rise of the eastern slope is not taken from the level of the sea, but from that of the Hawash, which has an elevation of 2200 feet above the ocean; that river being here the recipient of the waters of the eastern slope, as the Nile is of those of the western counter-slope. The Hawash at Melka-Kuyu is distant from the

sea about 200 miles, which gives a fall of 1 in 550, equal to an angle of $6' 15''$, for the eastward dip of the comparatively low desert country between the Hawash and the Indian Ocean, inhabited by the Beduin Dankali or Affar tribes.

As regards the counter-slope of the Abessinian chain, it would seem that the fall of the land towards the Nile in the western portion of it is considerably greater than it is in the eastern; so that the surface of the table-land, or broad summit of the mountain-chain, approaches more nearly to a level than if the slope were the same throughout. It is certain, however, that the table-land nowhere forms an absolute level, and that the general dip westward commences from its extreme eastern limit.

The table-land of Eastern Africa may, in the most general way, be compared to the Indian Peninsula and to South America, but with this difference. In those two portions of the globe, the Western Ghauts and the Cordilleras of the Andes present their principal acclivities towards the west, and thence slope gradually eastwards; whereas the African plateau rises abruptly on its eastern side and has its western counter-slope towards the interior of the continent and the valley of the Nile. Another point of difference is, that, while the rivers which rise near the western edge of the Ghauts and of the Andes take their courses eastwards over the counter-slopes, at right angles with the water-parting, or nearly so, and discharge their waters into the ocean; the streams which have their sources at the water-

parting of Eastern Africa flow in a general north-west-erly direction, and fall into the Nile ; which latter river skirts the lengthened western counter-slope, in its upper course appearing to be almost stagnant except during the rains, and to consist in the dry season of a series of swamps and lakes, rather than to form a continuous stream.

The table-land itself may, as a whole, be described as a succession of extensive undulating plains, dipping very gradually towards the west and north-west, and intersected by numerous streams ; which, after a short course over the surface of the plateau, fall abruptly into deep-cut fissures or valleys, in which they soon reach a depression of 3000 to 4000 feet below the general level of the table-land. The larger valleys are of considerable width : that of the Abai, for example, in the south of the peninsula of Gódjám, is at least twenty-five miles between the extreme points where it breaks from the table-land on either side. And as the country is wild and irregular, it is easy for a traveller, who has not taken a comprehensive view of the entire region, and who finds himself shut up in such a valley with a mass of broken country surrounding him, to believe that in ascending from the river he is crossing a mountain chain ; whereas, in reality, on arriving at the summit, he has merely reached the continuation of the table-land which he had left on the opposite side of the river. It is important to bear this in mind when perusing the works of travellers in Abessinia or countries of a similar character, many of whom, under this erroneous im-

pression, describe mountains where mountains in the usual acceptation of the word do not exist.

In addition to the irregularities of surface produced by the deep valleys of the rivers, the uniformity of the table-land is broken by loftier mountain masses, which in some parts, as in Samien, A'ngot, Lasta, Gódljam, Mięcha, Kaffa, &c., attain an absolute height of 11,000 to 15,000 feet, or even more, where snow, ice, and hoarfrost, are often, if not always, seen.

A remarkable peculiarity of most of the rivers joining the Nile, is that they have a circular course; so that, after having formed a curve of greater or less extent,—mostly, as it would seem, round the isolated mountain-masses just alluded to,—they return upon themselves at a comparatively short distance from their sources. As instances of this may be mentioned the Mareb, the Bellegas, the Abai, the Gibbe, the Godjeb; and as the geographer Claudius Ptolemy speaks of the *snows* of the Mountains of the Moon, in which he places the sources of the Nile, it is not improbable that the head-stream of this river has a like circular course round a lofty mountain-mass, similar in character to the snow-topped mountains of Samien and Kaffa. This was my recorded opinion in 1846, before the snowy mountains Kilimandjaro and Kenia were talked of. I see no reason to alter it now, in 1859, that the lakes Tanganyika and Nyanza have become known.

I have already stated that the rivers of Abessinia, in the early part of their course, flow over the level surface of the table-land, being little more than muddy

brooks, nearly without water in the dry season, but overflowing their banks so as almost entirely to inundate the plain country during the rains. They escape from the plateau by precipitous falls of 80 or 100 feet or more, into fissures in the rocky surface, at first only a few yards in breadth, but gradually opening to the extent of several miles, down which the stream hurries in a succession of falls and rapids, so as to descend several thousand feet in the course of a few miles. Of this rapid decrease in the elevation of the bed of Abessinian streams, the following instances may be cited. The Abai, just above the cataract of *Tis-Esāt* or "the Smoke of Fire," in the north-east of the peninsula of Gódjam, is about 6000 feet above the sea, while at the "Broken Bridge" only twenty-five miles lower down the stream, its elevation is but 3852 feet; so that in this short distance it has descended more than 2000 feet, or eighty feet per mile; and in the succeeding eighty miles of its course, namely between the Broken Bridge and the ford of the Derra Gallas, where I found its elevation to be 2936 feet, it has a further fall of nearly a thousand feet. The Chácha and Berésa, two of the head-streams of the Djamma, a principal tributary of the Abai, flow over the plain on either side of Angolalla, the Galla capital of Shoa, at an absolute elevation of about 8500 feet. At a distance of only 100 miles from Angolalla the Djamma joins the Abai a few miles below the ford of the Derra Gallas just mentioned, which gives a fall of about 5600 feet or fifty-six feet per mile; and of this fall as much as 1294 mètres, or 4245 English feet,

was found by M. Rochet to exist within the short distance of twelve leagues, being as much as 140 feet per mile.

Much misapprehension appears to prevail respecting the elevation of the bed of the Upper Nile. In the eighteenth volume of the "Journal of the Royal Geographical Society" (p. 69), Mr. Frederick Ayrton, says:—"Bruce assigns to the plateau of Sennar an altitude of 4000 feet, equal to 1220 mètres, above the sea; in which he is supported by the opinions of Rennell and Humboldt* (Ritter, "Geography," vol. ii., p. 251);" and at a recent meeting of that society†, Mr. James Macqueen relied still on the authority of Bruce for the height of Khartúm. From the barometrical measurements of Chaix, Uhle, and Russegger, between Cairo and Khartúm, and of Dovyak at the latter place, it results, however, that the greatest elevation that can be attributed to Khartúm is under 1200 feet.

At the present moment, when such important discoveries are being made in the regions of the Upper Nile, it is essential that correct opinions should be entertained respecting the fall of the Nile and its principal head-streams. With this view I will give here the results of a comparison of the measurements of the four observers above-named; to which are added those

* This is repudiated by Humboldt himself, who reproaches Bruce with "giving to Khartúm an elevation of 5041 feet instead of the true height, 1524 feet!"—See *Ansichten der Nasur*, Bohn's Translation, p. 118.

† See the Society's "Proceedings," vol. iii., p. 212.

of Dovyak for the Tubiri at Gondókoro, in 4° 44' North latitude ; of Russegger for the Blue River as far as the junction of the Tumat in 11° 13' North latitude, and of Ruppell and myself along the course of the Abai to its source in Mount Giesh.

The observations of Professor Chaix between Cairo and Philæ, which were made between December, 1846, and February, 1847, give the following results :*—

	North latitude.	Height above the sea in English feet.
Bulak, near Cairo.....	30° 3'	30
Bedrekhein, near Memphis	29 51	32
Benisuef	29 10	69
Djebel Teir	28 53	73
Minieh	28 6	116
Beni-Hassan.....	27 56	136
Rhoda, near Sheikh-Abu-Said	— —	151
Sheikh-Abu-Said.....	27 42	154
Hamra, the port of Siut	27 10	154
Akmim	26 33	183
Girge	26 20	188
Between Beliench and Farshut	26 15	192
Keneh	26 10	194
Thebes	25 42	223
Esneh	25 17	264
Edfu	24 58	288
Ombos	24 26	295
Between Ombos and Assuan	— —	315
Assnan	24 6	342
Philæ	24 —	405

The observations made by Dr. Uhle up the Nile, as far as Wadi Halfa, during the winter of 1856-7, with

* "Journal of the Royal Geographical Society," vol. xix., p. 144.

an aneroid barometer, have been calculated by Dr. Dippe of Schwerin* as follows :—

	North latitude.	Height above the sea in English feet.
Cairo	30° 3'	32
Assuan	24 6	401
Philæ	24 —	479
Wadi Halfa	21 54	522

The important measurements of Russegger have next to be considered. But before making use of them, a correction of thirty-two feet has to be made throughout ; they being based on sixty-four feet as the assumed height of the Nile, at Cairo, whereas it is in reality only thirty-two feet. With this correction, Russegger's measurements give :—

	North latitude.	Height above the sea in English feet.
Assuan	24° 6'	332
Korosko	22 36	448
Wadi Halfa	21 54	490 (estimated)
Solib	20 25	565
Dongola	19 11	775
Meraui	18 29	853
Abu-Hammed	19 28	994
El-Mukheirriff	17 59	1387
Metämmieh	16 40	1411
Khartúm.....	15 35	1493
Woadd Medineh.....	14 34	1567
Sennar	13 37	1615
Mek-el-Leli, Island near Roserres	12 10	1639
Junction of the Tumat	11 13	1847

* See Petermann's *Geographische Mittheilungen*, 1858, p. 377.

If we select Assuan as the point of comparison among the three observers just named, we find the height of that place to be—

According to Chaix	342 feet
„ Uhle	401 „
„ Russegger	333 „

and taking into account the earlier estimate of Caillaud, who made it . 346 „ we obtain a mean of 355 feet for the height of the Nile at Assuan, which is manifestly a close approximation to the truth.

Though Russegger's measurement at Assuan is thus seen to be somewhat too low, it may nevertheless be reasonably concluded that above Dongola, and especially from El-Mukheirriff upwards, his figures are too high. This is indeed an inference from the consideration of the fall of the stream alone. Between Cairo and Assuan the difference of level is 323 (355-32) feet; which, taking the length of the river between the two points at 484 geographical miles, gives a fall of 0.667 feet per mile for this the lower portion of the stream, in which there are no rapids. But just above Assuan is the first cataract (as it is called), with a fall of about eighty feet on a length of four miles; and between this and Khartúm are several similar "cataracts;" so that in this portion of its course the river must necessarily have a greater fall than it has within the limits of Egypt.

Now, Wadi Halfa lies 167 feet higher than Assuan, and is distant from it 208 miles; so that the fall here

is 0.803 feet per mile. Again, Khartúm lies eighty-two feet above Metämmieh, and ninety-eight miles further up; whence the fall between these two places is 0.888 feet per mile. If then, on these data, we assume 0.8 feet per mile as the average fall of the Nile within Nubia, it results that Khartúm, which is 755 miles distant from Wadi Halfa, must lie 604 feet higher than this latter place, and consequently 1126 feet above the sea. Remarkably enough, this is almost identically the height which Russegger himself gave in the first instance to Khartúm, from the temperature of boiling water, namely 1130 feet,* but which he subsequently abandoned in favour of his barometrical measurements.†

That Russegger's earlier estimate is the more correct is still better proved by the series of barometrical observations regularly made at Khartúm, from June to November, 1852, by M. Dovyak; which, on being calculated by Professor Kreil of Vienna,‡ give the startling result that the height of Khartúm above the sea is only 138 toises, or 862 English feet! We may however rest assured that this measurement is as much too low as that of Russegger is too high. It would give to the Nile between Khartúm and Wadi Halfa a fall of 0.477 feet per mile; which is much less than the fall of the stream in Egypt, without taking into account the rapids

* See Leonhard and Bronn's *Jahrbuch für Mineralogie, &c.*, 1840, p. .

† See his *Reisen, &c.*, vol. ii., part 1, p. 544.

‡ See *Sitzungsberichte der Kaiserl. Akad. d. Wissenschaften*, 1857, vol. xxv., p. 476.

in the upper portion. But if we assume the mean of the two results, namely $\left(\frac{1493+822}{2}\right)$ 1187.5 feet, as the height of Khartúm, the average fall between that city and Wadi Halfa will be 0.881 feet per mile, which is but a trifle in excess of the average of 0.8, already deduced from the fall between two portions of the entire distance.

The mean of 1188 feet may therefore be safely adopted as the approximate elevation of Khartúm; and correcting from this Russegger's other heights between El-Mukheirriff and Khartúm, and thence along the Blue River, and joining on to them the observations of Rüppell and myself up the Abai, we obtain the following results:—

	North latitude.	Height above the sea in English feet.	
El-Mukheirriff	17° 59'	1082	} Russegger
Metänmich	16 40	1106	
Khartúm	15 35	1188	
Woadd Medineh	14 34	1262	
Sennar	13 37	1310	
Mek-el-Leli, near Roserres	12 10	1334	
Junction of the Tumat	11 13	1542	
Baso (Melka Furi)	9 55	2316	} Beke
Liban (Melka Kuki)	9 52	2815	
Derra (Shebal)	10 12	2936	
Mota (Broken Bridge)	11 13	3852	
Lake Tsana	6270	Rüppell
Source of the Abai	10 57	8770	Beke

For the White River our materials are but scanty. There is, first, Russegger's determination of the height of El-Ais, in 13° 15' North latitude, namely, 252 feet above Khartúm, or 1440 feet above the sea; and next, the important series of barometrical observations made by

M. Dovyak at Gondókoro, in $4^{\circ} 44'$ North latitude, during a whole year, from January 1853, to January 1854. These observations, which, like those at Khartúm, have been calculated by Professor Kreil,* give to Gondókoro a relative height above Khartúm of 113 toises, or 723 feet, or an absolute height of 251 toises, or 1605 feet. Having already assumed the mean of 1188 feet as the elevation of Khartúm above the sea, it would be wrong to receive as an independent result M. Dovyak's absolute height of Gondókoro, especially as it is hardly possible that in the great distance between the two places the fall of the river should not be more than 417 feet. It will be better to adopt (but of course only provisionally) the difference which the observer himself establishes, namely, 723 feet; and this difference, added to 1188 feet, the mean elevation of Khartúm, gives 1911, or in round numbers 1900 feet, for the approximate height of Gondókoro above the ocean.

The eastern edge of the Abessinian table-land has been clearly traced as far as the ninth parallel of North latitude, to which distance it forms the water-parting between the basins of the Nile and the Hawash. How much further it extends southward our present knowledge scarcely enables us absolutely to determine. But we may safely regard it as reaching beyond the equator. Judging from the observations of Captain Short, who in 1849 ascended the river Juba about 270 miles from its mouth, where he saw to the westward (about 60 miles distant) what he believed to be a range of snowy moun-

* See page 35.

tains ; and from the explorations of the missionaries Krapf and Rebmann, the former of whom, in 1849, saw a lofty mountain named Kenia or Kignia, also covered with snow, the position of which may be approximately placed in 1° South latitude and $38^{\circ} 30'$ East longitude ; while the latter in 1848 discovered the snowy mountain Kilimandjaro in $3^{\circ} 30'$ South latitude and 37° East longitude ; it may be reasonably concluded that all these snowy mountains are connected with the broad mountain range of Eastern Africa, of which the Abessinian table-land forms the northern portion. These are the “ Mountains of the Moon ” of Ptolemy, and they form the water-parting between the basin of the Nile and those of the rivers flowing into the Indian Ocean, namely the Juba or Govind, the Dana or Ozi, the Adi or Sabaki, the Pangani or Rufu, and the Kingani or Mukondogo ; which, if not yet traced to their respective sources, are nevertheless sufficiently well known to enable us to determine the general limits of their respective basins, and thereby to close in the system of the Nile in this direction.

The continuation of the coast-range, or “ Mountains of the Moon,” was crossed as far south as $7^{\circ} 30'$ South latitude, by Captains Burton and Speke, as already mentioned.* In that parallel, however, the limits of the basin of the Nile, including Lake Nyanza, appear to be passed, the water-parting lying somewhere about 4° South latitude. On the assumption that Lake Tanganyika does not communicate with the Nile (though this cannot be positively asserted), the water-

* See p. 17.

parting will proceed along Captain Speke's "Mountains of the Moon;" and the extreme south-western limit of the basin of this river may consequently be laid down as crossing the equator on about the twenty-eighth meridian.

Here we are brought into that portion of the African continent which is least known, and where consequently it is not in our power to assert anything, except generally that in about the third parallel of north latitude the head-streams of the Congo or Zaire extend probably to near the twenty-fifth meridian, Dr. Barth having heard of a large river flowing westward in that parallel, and 23° East longitude. Beyond this, northward, as far as the eighth parallel, the Nile must in like manner be inclosed by the basins of the Benue and the Shary. But, about 80° North latitude and 24° East longitude, the Ada flowing to the east, according to that traveller, in confirmation of the received opinion, shows that the water-parting there lies much further towards the west than it does in the regions more to the south. North of this, the rivers of Wadai are understood to flow in a westerly direction, so that this kingdom is excluded from the basin of the Nile. On the other hand we may comprise within it Darfur, Kordofan, and some of the neighbouring negro countries.

As far as our means of information have permitted, the various head-streams which by their union form the river of Egypt have now been followed up towards their sources, and the physical character of the regions in which these head-streams originate has been described.

The conterminous hydrographical systems of the African continent have also been investigated, and the limits of the basin of the Nile thereby so circumscribed and defined, as to render it impossible for any material error to exist. In the "General Map of the Basin of the Nile" accompanying the present work, these limits are approximatively laid down ; being almost identical with those marked in a similar map, drawn by my friend Dr. Petermann in August, 1849, and given to the late Mr. George R. Gliddon for insertion in his "Hand-Book to the Panorama of the Nile."

We have now to trace the steps by which, from the earliest ages down to the present time, we have arrived at the knowledge we possess of this still mysterious river.

CHAPTER III.

EARLY NILOTIC DISCOVERY.

EGYPT, according to the terse expression of Herodotus, is the gift of the Nile. To speak, therefore, of the Nile within the limits of Egypt, is to speak of Egypt itself. It is only after having followed the river upwards beyond the Egyptian territory, where its course lies through unknown, desert, or uninhabited regions, that discovery may be said to commence. But who shall trace the progress of discovery of the Upper Nile during the earliest ages? Expeditions, warlike or otherwise, into the countries of the south, may be vaguely alluded to by poets and historians, or traced in the carved records of Egypt herself; but nothing definite can be concluded from such imperfect and insufficient memorials. No better summary of the history of early Nilotic discovery can perhaps be given, than that placed by the poet Lucan in the mouth of the priest Achoreus, when questioned by the Roman conqueror of Egypt:—

Cesar's desire to know our Nilus' spring
Possessed the Egyptian, Persian, Grecian king.
No age but strived to future time to teach
This skill: none yet his hidden nature reach.

Philip's great son, Memphis' most honoured king,
 Sent to earth's utmost bounds, to find Nile's spring,
 Choice Ethiops: they trod the sun-burnt ground
 Of the hot zone, and there was no Nilus found.
 The furthest west our great Sesostris saw,
 Whilst captive kings did his proud chariot draw;
 Yet there your Rhodanus and Padus spied,
 Before our Nile's hid fountain he descried.
 The mad Cambyses to the eastern lands
 And long-lived people came: his famished bands,
 Quite spent, and with each other's slaughter fed,
 Returned; thou, Nile, yet undiscovered.*

. It is only natural that the origin of this great river should have been a question of interest, not merely to the inhabitants, but to every intelligent and inquiring foreigner who might visit that country. The geographer Strabo, when arguing in favour of Homer's acquaintance with the Nile, very pertinently contends that the best known peculiarities of a country are those which have something of the nature of a paradox, and are therefore likely to attract general attention. "Of this kind (he says) are the rising of the Nile and the alluvial deposit at its mouth. There is nothing in the whole country to which travellers in Egypt so immediately direct their inquiries as the character of the Nile; nor do the inhabitants possess anything else equally wonderful and curious, of which to inform foreigners; for, in fact, to give them a description of the river, is to lay open to their view every main characteristic of the country.

* Lucan, lib. x., vers. 268-283; May's translation.

It is the question put before every other by those who have never seen Egypt themselves.* The truth of these expressions is evidenced by the earliest Greek traveller on record, "the father of History," who was minutely particular in his inquiries as to the nature and origin of the Nile. And Strabo's account of Eudoxus of Cyzicus, a traveller into Egypt in the reign of Euergetes II.—who, being a learned man, and much interested in the peculiarities of different countries, made interest with the king and his ministers on the subject, *but especially for exploring the Nile,*†—reads more like an incident at the divan of the Turkish pashas of Egypt in the nineteenth century, than one at the court of the Ptolemies two centuries anterior to the commencement of the Christian era.

The first authentic record of a journey undertaken to discover, if not the sources, at least the upper course of the Nile, is that of the historian Herodotus. After fruitless inquiries in Lower Egypt, he tells us‡ that he went in person as far as Elephantine to make observations and collect information. Before noticing the results of his investigations, I will advert to the statement made to the traveller by the registrar of Minerva's treasury at Sais, that there were two mountains, named Crophi and Mophi, rising into sharp peaks, situated between the city of Syene in Thebais and Elephantine ;

* "Geography" of Strabo, book I., chap. ii., § 29. Hamilton and Falconer's translation, vol. i., p. 57.

† *Ibid.*, book II., chap. iii., § 4. Vol i., p. 149.

‡ Euterpe, 28.

and that the sources of the Nile issued from between those mountains, half of the water flowing over Egypt and to the north, and the other half over Ethiopia and to the south.

The Greek traveller has been ridiculed for giving credence to so absurd a story. But from his own statement it is evident that he placed no faith in it, if indeed its relater believed it himself. The fable however possesses no little importance if rightly considered. It has been ingeniously argued by a recent traveller in Egypt that, to the inhabitants of that country, a convulsion, like that of the first cataract, in the face of their calm and majestic river, must have seemed the very commencement of its existence, the struggling into life of what afterwards becomes so mild and beneficent ; and that if they heard of a river Nile further south, it was but natural for them to think it could not be their own river. The granite range of Syene formed their Alps—the water-parting of their world. If a stream existed on the opposite side, they imagined that it flowed in a contrary direction into the ocean of the south.* But Mr. Stanley does not go on to show how the Egyptian priesthood may have improved this vulgar notion, and elevated it into an article of religious belief, by dogmatically placing here the origin of their sacred river, the birthplace of Hapi-Mu. Hence, to the ordinary native enquirer, as well as to the inquisitive foreigner, the ready answer would have been such as

See "Sinai and Palestine," by Rev. A. P. Stanley, p. 43.

the priest of Sais gave to the Halicarnassian traveller ; though to the initiated it might have been very different. Herodotus, without troubling himself to unravel a mystery which was evidently an imposture, went himself to Elephantine, and there obtained correct information concerning the further course of the river. The result of his inquiries was that the Nile was known from that place upwards to the country of the Automoli, a distance of four months' journey ; and he adds the remarkable statement that "the river flows from the west and the setting sun, but beyond this no one is able to speak with certainty, for the rest of the country is desert by reason of the excessive heat."*

Without stopping to discuss the precise position of the country of the Automoli, it will be sufficient to observe that, according to Herodotus, it lay along the main stream of the Nile, and that beyond it the river came from the west ; a description which can only apply to the Bahr-el-Abyad in 9° North latitude, and to its great western arm, the Keilak or Bahr-el-Ghazal.

The information obtained by the Greek traveller respecting the further course of the Nile, is not however restricted to what has just been stated. He relates† on the authority of Etearchus, king of the Ammonians (reported it is true second-hand), how certain Nasa-monians undertook a journey of discovery across the deserts of Libya ; and that, having passed through the inhabited country, and then the region infested by wild

* Euterpe, 31.

† *Ibid.*

beasts, they crossed the desert, making their way towards the west. After a journey of many days, they saw some trees growing in a plain, and while gathering the fruit they were seized and carried away by some diminutive men, whose language they did not understand. In this state of captivity they traversed vast morasses, and arrived at a city, whose inhabitants were of the same diminutive size and quite black, and all of them necromancers. This city was situated on the shore of a large river running from west to east, in which were crocodiles. How long the Nasamonians were detained in captivity is not stated, but eventually they returned safe to their own country. King Etearchus conjectured that the river described by the travellers was the Nile; and Herodotus entertained the same opinion.

Imperfect as is still our knowledge of the Upper Nile, we are not warranted in assuming that Herodotus may not have possessed at least an equal amount of information with ourselves. His narrative bears the stamp of good faith, and we are bound to receive it as a reflection of the truth, if not absolutely true in all its details.

That the Nile comes from the west is an opinion prevalent at the present day among the inhabitants of the valley of its main stream. M. Ferdinand Werne,* when ascending the Bahr-el-Abyad, passed by the confluence of the Bahr-el-Ghazal, where he was told by

* "Expedition zur Entdeckung der Quellen des Weissen Nil,"
p. 131.

some negro soldiers of Mustafa Bey that the latter river came from the country of the Moghrebins, which appears to have been understood as meaning Barbary. This error, on the part of either M. Werne or his informants, is evidently the same as that which produced the incorrect description of the Upper Nile given to Pliny by Juba, king of Mauritania. The Arabic term مغرب *moghreb*, means simply *the west*; so that "Moghrebin" is nothing more than an inhabitant of any western country. No doubt the expression has been specially applied to the extreme north-western regions of Africa, known to Europeans under the general designation of Barbary; and it has even passed over into Europe, where Algarve (الغرب *al-gharb*) is the name of the southern portion of the kingdom of Portugal. But it is almost certain that the expression was first applied to some country very much nearer Egypt and Arabia. Wherever the original country of the Moghrebins may have been, the people to whom the appellation was given have always borne throughout the East the character of necromancers, just as the inhabitants of the city reached by the Nasamonians.

The traveller Burckhardt has recorded some particulars respecting the Tekajrne or negro pilgrims of Central Africa, which may help us materially in the elucidation of this subject. He states that Tekrury, the singular of this appellation, is not derived from a country called Tekrur, as is generally supposed in the East, whereby all the Arabian geographers have been misled; but from the verb تكور *takorror*, signifying

“to multiply, renew, sift, purify, invigorate:” *i.e.* their religious sentiments, by the study of the sacred book and by pilgrimage. The appellation is bestowed on all negroes who come from the west in search of learning or for the Hadj, of whatever country they may be. They do not call themselves by this name of Tekrury, which many of them assured him they never heard until they reached the limits of Darfur. All these pilgrims can read and write a little, and they all belong to the class styled Faky (plural Fakiha).* He adds† that in Africa, as well as Arabia, wherever the black Fakys pass, the country-people are eager to possess amulets of their writing, which are supposed to possess greater virtue than those of any other class of pilgrims. In order to show that these Tekajyrne do not necessarily come from any far-distant country in the west, the same traveller informs us‡ that, of a party of five whom he joined on his road from Shendy to Taka, three were natives of Bornu, while one was from Darfur, and another even from Kordofan. These Tekajyrne or Moghrebins, then, are negroes from almost any portion of the interior of Africa west of the Bahr-el-Abyad, whose superior learning has (as is usual) caused them to be regarded by the people of Egypt and Arabia as cunning men or wizards, and therefore necromancers.

As we are now well assured that the Bahr-el-Ghazal runs to the south of Kordofan and Darfur, the pilgrims

* “Travels in Nubia,” p. 406.

† *Ibid.*, p. 413.

‡ *Ibid.*, p. 364.

from which countries are looked on as necromancers by the Egyptians, like those from regions further west ; we have only to assume that the Nasamonian explorers did not turn westward till after they had traversed the inhabited country and also the region infested by wild beasts, that is to say only while crossing the desert,— and the words of Herodotus literally taken do not warrant more ; and the reasonable conclusion will be that the “large river running from west to east,” to which they were taken, was the upper course of this western arm of the Nile.

Although some time before the visit of Herodotus, Egypt had been thrown open to foreigners, the natives themselves, like the modern Chinese, who resemble them in many respects, appear to have felt little interest in anything beyond the limits of their own country. After the conquest of Egypt by Alexander, and the occupation of its throne by the Greek Ptolemies and subsequently by the Roman Cæsars, another order of things prevailed, and Egypt with its capital Alexandria became one of the centres of intellectual attraction. With the spread of knowledge, and the consequent liberation of the mind from superstitious preconceptions, the Nile was no longer merely the sacred river of Egypt ; and its course beyond the limits of that country became a subject of investigation and discussion among the learned men of that and other nations.

We are far from being acquainted with all that the ancients knew on this subject, and must content ourselves with the examination of that portion, probably a

very small one, of their knowledge which has been handed down to us.

Our first authority is Eratosthenes, who flourished in the latter half of the third century before Christ, about two centuries after Herodotus. In the fragments of his writings preserved by Strabo, we find no account of the upper course of the Nile; but, after describing the main stream below Meroë, he says:—"Two rivers empty themselves into it, which issue out of some lakes towards the east, and encircle Meroë, a considerable island. One of these rivers is called Astaboras, flowing along the eastern side of the island. The other is the Astapus, or as some call it Astasobas. But the Astapus [Astasobas] is said to be another river which issues out of some lakes in the south, and that this river forms nearly the body of the Nile, which flows in a straight line, and that it is filled by the summer rains; that above the confluence of the Astaboras and the Nile, at a distance of 700 stadia, is Meroë, a city having the same name as the island; and that there is another island above Meroë, occupied by the fugitive Egyptians, who revolted in the time of Psammetichus, and are called Sembritæ or foreigners. Their sovereign is a queen, but they obey the King of Meroë."*

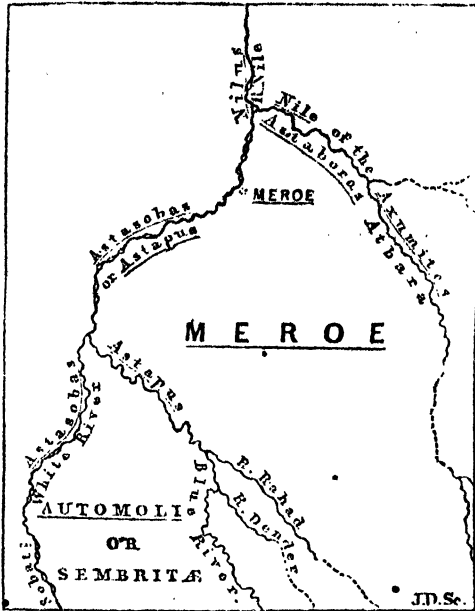
In this description of Eratosthenes I suspect an error, introduced most probably by his copyist, Strabo. The statement that "the *Astapus* is said to be another river,"

* Strabo, b. XVII., c. 1, § 2. Hamilton and Falconer's Translation.

coming from the south, is anything but intelligible, when considered with the context. The proper construction appears to be that the author, after having asserted the *fact* (which is confirmed by Ptolemy, and cannot be disputed) that the Astapus is the river on the western side of Meroë, intended to explain that some persons called the Astapus by the name of Astasobas, but in his opinion erroneously ; for that the *Astasobas* (not "Astapus," as written by Strabo) is by others, and with truth, said to be another river, issuing out of some lakes in the south ; that is to say, the main stream of the Nile itself above the junction of the Astapus or Blue River.

The order in which the three names, Astaboras, Astapus and Astasobas, are placed by that most correct geographer Artemidorus, who flourished in the age between Eratosthenes and Ptolemy, speaks strongly in favour of this construction. I may add a curious fact, not to say in confirmation, but as a remarkable coincidence. Assuming the Sobat, M. Russegger's "White River,"* to have been known to the early Greek geographers of Egypt, and to have been regarded by them as the upper course of the Nile ; and assuming also the initial portion of the three names—"Asta"—to mean river ; we have this close correspondence between their ancient and modern appellations :—Ast' *Aboras*, Atbara ; Ast' *Apus*, Abai ; Asta-*Sobas*, Sobat.

The accompanying woodcut renders intelligible the statement of Eratosthenes, as explained by me, that the river on the west side of Meroë bore two different names. As is there shown, the main stream, after the



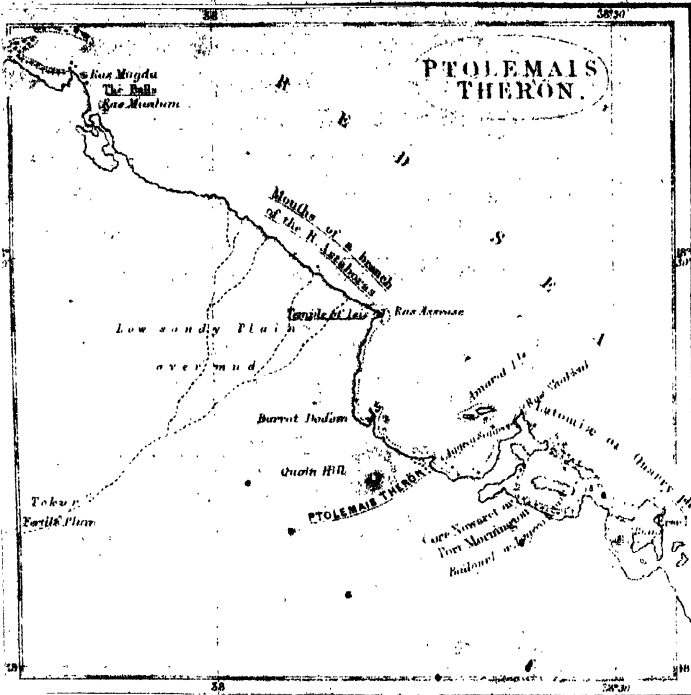
junction of the Astapus (Blue River) and the Astasobas (White River), may be called by either of those two names, according to the side from which it is viewed. This is the converse of the much-mooted question, now at length set at rest for ever, which of those two streams should be regarded as the upper course of the Nile. The Astasobas was the direct stream of the White River or Nile; but the inhabitants of Meroë not unnaturally contended for the supremacy of their Astapus, in like manner as the Axumites once did for their Tákkazyo,

and as the modern Abessinians do for their Abai. But science steps in, and unfeelingly decides that, though the main stream of a river may be regarded as the lower course of any one of its affluents, as receiving it; it does not follow that one particular affluent shall be regarded as the upper course of its recipient, to the exclusion of others possessing as great or greater natural claims to that distinction.

About a century after Eratosthenes, Artemidorus, apparently copying Agatharchides, who immediately preceded him and who had written a work on the Erythrean sea now unfortunately lost, is quoted by Strabo* as merely saying that "near Meroë is the confluence of the Astaboras, the Astapus and the Astasobas, with the Nile." This has led some geographers of modern times to regard the Astasobas as a separate river, but to identify it with the Mareb. After the explanation just given, it will be manifest that Artemidorus was merely giving a succinct summary of the information furnished by Eratosthenes, which was too well known to all geographers and learned men at Alexandria to require special detail.

The intimate acquaintance of Artemidorus with the general subject of the Nile and its several affluents, and the consequent improbability of his being in error in this particular, are placed beyond doubt by his description of the bifurcation of the Mareb as a "branch of the Astaboras," with which fact we have only just

* Book XVI., c. 4, § 8.



Published by T. Mudden & Co. London, 1852.

now become acquainted. The whole of the passage cited by Strabo from the writings of Artemidorus, which like those of Agatharchides exist only in fragments preserved by other authors, is very curious and highly instructive. In describing the western coast of the Arabian Gulf, after mentioning "two mountains called the Bulls from their resemblance at a distance to those animals," he proceeds thus:—"Then follows another mountain, on which is a temple of Isis built by Sesostris; then an island planted with olive-trees and at times overflowed. This is followed by the city Ptolemais, near the hunting-grounds of the elephants, founded by Eumedes, who was sent by Philadelphus to the hunting-ground. He enclosed, without the knowledge of the inhabitants, a kind of peninsula with a ditch and wall; and by his courteous address gained over those who were inclined to obstruct the work, and instead of enemies made them his friends. In the intervening space, a branch of the river Astaboras discharges itself. It has its source in a lake, and empties part of its waters here, but the larger portion it contributes to the Nile. Then follow six islands called *Latomia* [*i. e.* stone-quarries]; after these the Sabaïtic mouth, as it is called, and in the inland parts a fortress built by Suchus."*

The accompanying outline of the coast thus described by Artemidorus, is copied from the East India Company's Chart of the Red Sea. When we compare the passage from the "Sailing Directions for the Red Sea"

* Strabo, book XVI., c. iv., §§ 7, 8.

of Captains Moresby and Elwon, immediately preceding that already quoted by me in page 7, with the description given by Artemidorus twenty centuries ago, we cannot but be amazed at the minute accuracy with which that description answers to the state of things at the present day.

It must be premised that the Indian survey was made from south to north, while the description of Artemidorus is from north to south. After describing Core Nowarat (called Port Mornington by Lord Valentia), with the islands about it (Wellesley Islands) and Ras Shakkul, the surveyors proceed in the following terms:—“N. 54 W., $12\frac{1}{2}$ miles from Ras Shakkul is Ras Assease, the coast between forming a deep bay with soundings of twelve to six or five fathoms. From two to three miles west of Ras Shakkul are the two Amarat Islands; they are low and sandy with a few bushes on them . . . : Between these and the cape land is a passage to Aggeeg Seggeer, a small island in the bottom of the Bay, bearing S. W. by W. $6\frac{1}{2}$ miles from Ras Shakkul. This island, with a small tongue of land to the westward of it, forms an anchorage in five or four fathoms, and half a mile from the beach are some wells dug in the sand, containing brackish water in the dry season. About one mile from the beach, in the direction of Quoin Hill, are some remarkable ruins in a straight narrow line, $1\frac{1}{2}$ mile in length and from twenty to sixty feet wide; they are situated upon raised ground sloping from the centre to either side, and there are many graves. About $5\frac{1}{2}$ miles N. W. by N. of the tongue of land at Aggeeg

Seggeer, is a similar one running to the north, called Barrat Dodom ; and from this tongue to Ras Assease it is $7\frac{1}{2}$ miles N. E.*

Whether the Ras Mugda and Ras Mucdum of the chart bear at a distance any such resemblance to two bulls, as to justify the application of that name to them, is not noticed in the passage just cited. But the intervening space between them and Ras Assease is, without question, the spot where the Mareb or Khor-el-Gash, "a branch of the Astaboras," used to discharge and perhaps still discharges a portion of its waters into the sea. The only explanation required with respect to this river is, that the lake spoken of by Artemidorus as its source, must be understood to mean the plain country of Taka, which during the rainy season (as we are informed by Burckhardt) resembles a lake, its whole surface becoming a sheet of water, varying in depth from two to three feet, and remaining in this state about a month.

Ras Assease itself, in Arabic *عسيس* ('*asis*), the last headland before reaching Ptolemais Theron from the north, corresponds precisely in position, and scarcely less in name, with the mountain on which Sesostris is said to have built a temple of Isis. The island planted with olives and at times overflowed, is represented either by one of the Amarat Islands or of those at Barrat Dodom. Captains Moresby and Elwon's description of the remarkable ruins in a straight narrow line,

* "Sailing Directions for the Red Sea" (London, 1841), p. 162.

one mile and a half in length, enclosing the small tongue of land at Aggeeg Seggeer, corresponds so exactly with the ditch and wall constructed by Eumedes to enclose the peninsula on which he formed his settlement of Ptolemais, as to leave not the slightest possibility of question as to their identity. The six Latomixæ or Quarry Islands, are as clearly represented by the islands in Core Nowarat and Eree Island; in which latter, as well as in that called Badoor or Aggeeg Kebeer, the Indian Navy surveyors found many "tanks cut out of the solid rock."

Identifications of places made under preconceived notions are rarely to be depended on. It is therefore due to Captains Moresby and Elwon to explain that, far from imagining the small tongue of land at Aggeeg Seggeer to be the peninsula on which Ptolemais Theron was founded, they identified that city, both in their chart and at page 159 of their "Sailing Directions," with some ruins in coral rock discovered by them on Eree Island, which ruins will probably on examination, prove to be some of the quarries (latomixæ) from which the islands derived their name.

The subject of the position of Ptolemais Theron has been critically investigated by Lord Valentia, who,—entirely supporting the opinion of D'Anville, formed "in defiance of all difficulties," that the city must have been situated between 18° and $18^{\circ} 30'$ North latitude,—fixes on Ras Assease (Asseez) in $18^{\circ} 24'$ as the most likely spot. This, however, is nearly as far in error to the N.W. as Eree is to the S.E., the true position of

Ptolemais being in $18^{\circ} 15'$, which is precisely the mean of D'Anville's hazardous but (as the result has proved) most judicious determination.

It is in the pages of Strabo that these precious memorials of Eratosthenes and Artemidorus have been preserved and handed down to us ; and yet the description given by Strabo himself of the rivers that unite in the neighbourhood of Meroë to form the Nile, is so vague and unintelligible, that commentators have experienced the greatest difficulty in their endeavours to explain his meaning. One of the ablest, Letronne, has honestly said :—" I declare without hesitation that I do not understand my author." He might have added the expression of his belief that Strabo himself did not understand his subject.

The naturalist Pliny has also left us a description of the Nile, even more incomprehensible than that of the geographer Strabo. The fact is, both these authors were collectors and compilers of the statements and opinions of others ; and, as regards the subject of the Nile, they do not appear to have possessed sufficient knowledge or discrimination to choose the good and reject the bad.

One of the chief causes of the perpetuation of error, is a blind deference to the authority of previous writers, who have not really had equal opportunities with ourselves of arriving at the truth. So long as we possessed no certain knowledge of the position and courses of the several head-streams of the Nile, it was necessary to collate authorities, in order by comparison to decide, or

at least to conjecture, which of them approximated most nearly to truth. But now that on certain points our knowledge is definite, it would be absurd to repeat the opinions of either ancient or modern writers, merely for the purpose of showing them to be erroneous. The outlet of the river Niger affords a parallel case. So long as the mouth of this great river of Western Africa remained unknown, wide indeed were the speculations on the subject. The Djoliba or Niger was thought to be the head-stream of the Nile or of the Congo; and (if I remember right) the latest opinion enunciated was, that it discharged its waters into the Mediterranean! A simple individual, not possessing or pretending to scientific knowledge, followed the course of the Niger to one of its mouths in the Gulf of Guinca, and the opinions of the first geographers and men of science were at once rendered worthless. It may, as a matter of history, be deserving of record that, as early as 1802, the German geographer Reichard opposed the views generally entertained in England respecting this river, and contended that it ran southwards into the Bight of Benin, as it was found to do by Lander in 1831; but beyond this it is immaterial who advocated either that opinion or any other. Reichard was the theoretical, Lander the practical discoverer; and all is said. So should it be with respect to the Upper Nile. Where facts have superseded opinions, we must put aside the opinions, however high their authority, and be guided by the facts: where our knowledge is uncertain, or where it is necessary to point out and counteract some

prevailing error, it is still necessary to notice and take account of opinions. Such is the case as regards the statement of Herodotus respecting the great western arm of the Nile, though perhaps ere now the discoveries of some enterprising explorer may have converted the opinion into a certainty, or have shown it to be erroneous.

Dismissing then, as undeserving of notice in the present consideration of the subject, the various opinions of ancient writers, wherever they are not in accordance with the facts we now possess, I proceed to refer to the account preserved by Seneca* of the expedition sent by the Emperor Nero to discover the sources of the Nile. The verses of that philosopher's nephew, cited at the commencement of this chapter, plainly show how much the river of Egypt must have engrossed public attention in the time of Nero; and it is quite intelligible how that sovereign, even if not altogether what his preceptor describes, *ut aliarum virtutum, ita veritatis imprimis amantissimus*, should have been equally desirous with many other potentates of earlier as well as later times, to lay bare the hidden secrets of African geography. Accordingly, he dispatched two centurions to discover the source of the Nile. Whether the two officers went, like Major Denham and Lieutenant Clapperton, accompanied merely by their personal attendants, or like Captains Burton and Speke with a

* *Quaest. Nat.*, lib. vi., c. 3.

small escort, or else like Selim Bey and D'Arnaud Bimbashi at the head of a body of men, is not recorded. All we are told is, that, after a long journey, in which they were assisted by the King of Ethiopia (Meroë) and other princes to whose care they were recommended by that monarch, they at length reached some immense marshes or swamps, whose extent was unknown to the inhabitants of the adjacent countries, and which were so choked up by reeds and tall grasses as to be impracticable either by land or by water, except in a small boat capable of conveying only one person. This description is so entirely applicable to the White River in about the ninth parallel, as recently explored by the Turco-Egyptian expeditions, that the two Roman centurions must be regarded as having been eighteen centuries in advance of the officers of Mohammed Ali, in the discovery of this portion of the Upper Nile.

As to Seneca's further account of the two rocks, down or out of or from between which the river was said to fall with great force (*duas petras ex quibus ingens vis fluminis excidebat*), I am inclined to treat this as an addition made with a view to conform to the popular notion in Egypt, to which allusion has already been made,* that the Nile issued from between two rocks or mountains, called Crophi and Mophi. Nevertheless, the explorers may have seen the confluence of some stream in a locality of sufficiently marked character to justify partially, if not entirely, their description.

* Page 43.

It results then from the statements of Ératosthenes, Artemidorus and Seneca, which are literally confirmed by the explorations of modern times, that, in or previously to the first century of the Christian era, the main stream of the Nile had been ascended as far as the ninth parallel of North latitude, and that its two great Abessinian tributaries, the Astaboras or Atbara and the Astapus or Blue River, and seemingly also the Astasobas or Sobat, were known, as well as the bifurcation of the Mareb or Khor-el-Gash, a branch of the Astaboras. From the account given by Herodotus of the journey of the Nasamonians, it is to be inferred that the Keilak or Bahr-el-Ghazal was likewise known. In other words, the actual personal knowledge of the Upper Nile possessed by the Greeks and Romans at the commencement of the Christian era, was very far superior to that possessed by the civilized world till near the middle of the nineteenth century.

In the second century after Christ, that is to say in the time of the geographer Claudius Ptolemy, we have evidence that the Nile was known up to some, at least, of its sources, namely those in the "Mountains of the Moon." As far, however, as we have the means of judging, this knowledge was not acquired from explorations and researches further up the main stream, but from information obtained on the east coast of Africa, similar to that collected there by the Portuguese in the sixteenth and seventeenth centuries, and by ourselves at the present day.

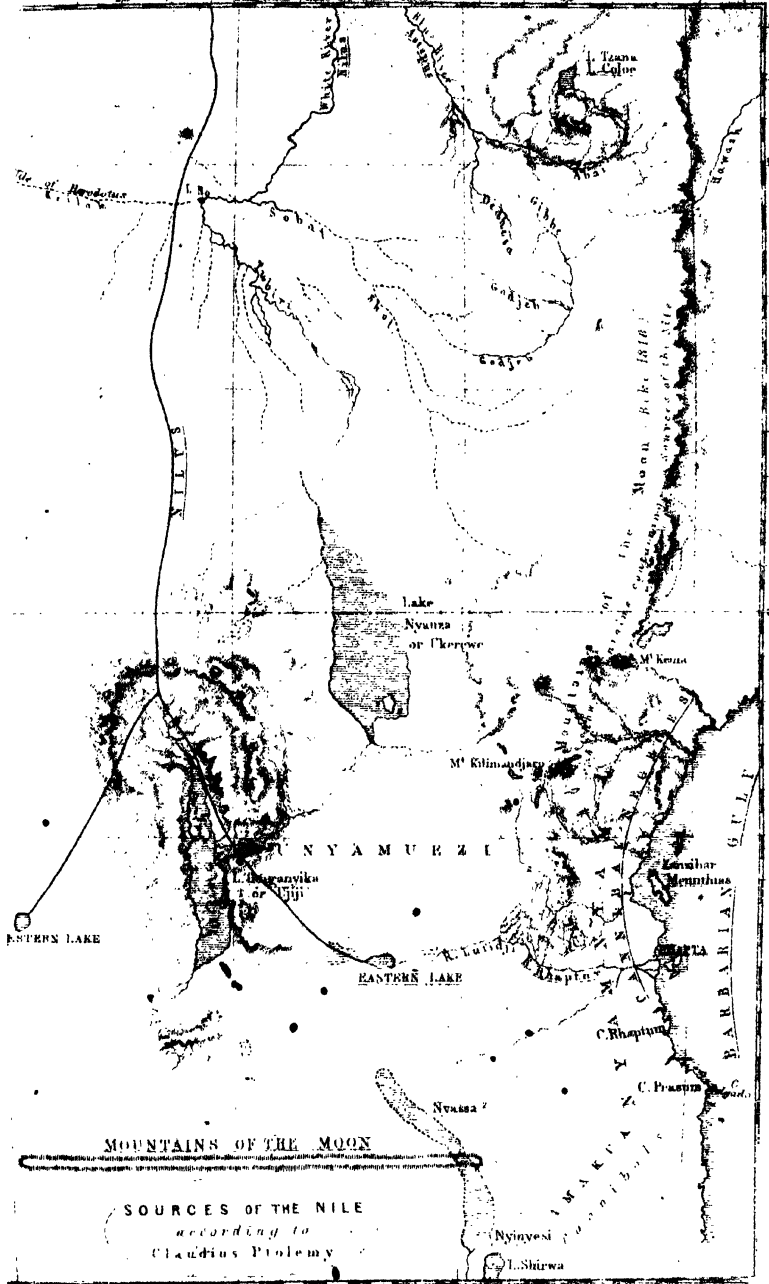
CHAPTER IV.

CLAUDIUS PTOLEMY AND THE MOUNTAINS OF THE MOON.

THAT the east coast of Africa was from the earliest ages known to the traders of Southern Arabia, is manifest from the frequent allusions in the Hebrew Scriptures to the "gold of Ophir,"*) which, through the intervention of those traders, found its way to the countries bordering on the Mediterranean.

The regularity of the winds in the Indian Ocean, which blow in one direction during half the year and in the opposite one during the other half, must soon have habituated the Arabian seamen to voyages which, under other circumstances, might appear long and dangerous, and enabled those hardy navigators to trade and form settlements along the African coast even to the south of the equator. In the "Periplus of the Erythrean Sea," the whole of the coast as far as Rhapta, two days' voyage beyond the island of Menuthias, is mentioned as being under the rule of the Arabian king Mopharite, by

* Job xx. 24, xxviii. 16; Ps. xlv. 9; 1 Kings ix. 28, x. 11, xxii. 48; Isa. xiii. 12; 1 Chron. i. 23, xxix. 4; 2 Chron. viii. 18, ix. 10.



whom it was leased on tribute to the merchants of the port of Musa, who sent thither their ships; the Arab captains and crews of which formed alliances with the natives, and thus became acquainted with their languages and customs. As it was in and before the time of the Periplus, so it has continued to the present day; except that the Imam of Maskat, unlike his predecessor king Mopharite, has found it more to his advantage to reside in his dependencies on the African coast, and to draw his principal revenue from their commerce, than to remain in his native dominions and abandon his African possessions to the Arab merchants.

When speaking of the "gold of Ophir" as having been brought from the east coast of Africa to Southern Arabia and thence carried to the Mediterranean, I must not be understood as meaning that Ophir itself was in Eastern Africa. On the contrary, my opinion recorded in the "Origines Biblicæ"* is, that the people from whom that country derived its name were originally placed on the western side of the head of the Persian Gulf, in the immediate vicinity of Havilah and Sheba, the three being named in conjunction in the tenth chapter of the Book of Genesis; † Havilah, like Ophir, being famed for its gold, ‡ and Sheba being also noted for its supplies

* Page 511.

† "And Joktan begat . . . Sheba and Ophir and Havilah."—Gen. x. 28, 29.

‡ "The whole land of Havilah, where there is gold, and the gold of that land is good."—Gen. ii. 11, 12.

of the precious metal.* Thus we read of the Queen of Sheba who, on the occasion of Solomon's first sending ships to Ophir, was induced to cross the Arabian desert to Jerusalem, carrying with her as a present one hundred and twenty talents of gold, in addition to the four hundred and twenty talents conveyed by the Tyro-Israelitish fleet from Ophir by way of the Sea of Edom or Red Sea.†

Why the "gold of Ophir" should have obtained the name of a place which did not produce it, is easily explained. Ophir was the principal country from which it was last exported. Just in the same way, Mokhia coffee, when imported from the Turkish ports in the Levant, came to us as "Turkey" coffee; and Brazil

* "To him shall be given of the gold of Sheba."—Ps. lxxii. 15. "The merchants of Sheba and Raamah . . . occupied in the fairs [of Tyre] with the chief of all spices, and with all precious stones and gold."—Ezek. xxvii. 22.

† The "three years" which Solomon's "ships of Tarshish" employed in performing the voyage, means three years *inclusive*, which becomes practically only *two* years. They went one year, returned the next, and went again the third. •In *Origines Biblicæ* I have adduced several similar and even stronger instances. I will repeat one here:—"It is on this principle that the Jews computed their kings' reigns; according to the doctrine of the Talmud, *Treatise Rosh Hasshanah*: 'a king who has been elected on the 29th of Adar [the last day of the year], has on the 1st of Nisan [the first day of the next year] completed a year, and commences another . . . since one day of a year is considered to be a [whole] year.'" In this case, while the Jewish historian would record that the king had reigned two years, we should say he had reigned only *two days*!

sugar sent from Lisbon to the Mediterranean was called "Lisbon" sugar. In like manner Welsh or Cheshire coal, shipped from Liverpool to North America, is there known as "Liverpool" coal. The products of Indian looms, purchased by the traders of the West in the markets of Mosul and Damascus, became with us muslins and damasks; as the silken fabrics of France and England, when carried from the fair of Leipzig into Circassia, are "Leipsig" silks, whose lustre serves the Circassian poet as a foil to the glossy hair of his mistress. The slaves of Kaffa and the neighbouring countries of Southern Abessinia, when taken to the market of Baso in Gódjam, are by the Galla slave-dealers called Sidámas, this being the general denomination for Christians, which many of those poor creatures are; but, in the transit across Abessinia, they become "Gallas;" and when carried from the latter country into Arabia, Egypt, or Persia, they are known as "Hubshecs" or Abessinians. Many similar examples might be given, but one more shall suffice: the rhubarb of the druggists, *rheum palmatum*, is to this day called "Turkey" rhubarb, because our Turkey merchants were its first importers; though all that even now is known of its origin is, that the Russians buy it from the Chinese at the frontier market-town of Kiachta, and hence it is supposed to be the produce of Thibet; but the precise place of its growth and even the species of *rheum* are still unascertained. So was it with the gold of Ophir, Havilah, and Sheba, which, brought from the east coast of Africa to those maritime districts of Arabia,

obtained its name from them instead of the country of which it was the natural product.

The Arabian settlers on the east coast of Africa and their descendants, now known as Sawáhilis or coast-men (in Arabic سواحلى from ساحل *coast*), cannot have failed to become more or less intimately acquainted with the interior of the continent and its inhabitants; and it is only reasonable to conclude that some portion at least of that knowledge was communicated to the Tyrians, Jews, Greeks, and others who came in contact with them in the Arabian ports, or visited the east coast of Africa, as the Portuguese have done since the beginning of the sixteenth century, and as Europeans and Americans are now doing.

During the few years of our connexion with Eastern Africa we have acquired a knowledge of the snowy mountains Kilimandjaro and Kenia, the great lakes of "Monomoezi," and have been told that the Nile has its sources in or near these lakes and snowy mountains. The nations of antiquity surely possessed the means of acquiring as much information during the many centuries they traded on the coast. It would indeed be unreasonable to imagine otherwise. That they did actually possess information similar to our own is proved by the "Geography" of Claudius Ptolemy.

By that writer, who flourished in the second century of the Christian era, the east coast of Africa is laid down with more or less accuracy as far as the trading town of Rhapta, lying on the river Rhaptus, at a short distance from the sea, Cape Rhaptum being somewhat to

the south ; and the coast is described by him as stretching from the latter point towards the east as far as Cape Prasum, beyond which it was unknown. Cape Prasum was made to be the southern limit of the Barbarian Gulf, around which a race of cannibal negroes was said to dwell ; and in the west of their country were the Mountains of the Moon, from whose melted snows the lakes of the Nile were supplied. These Mountains of the Moon are described as extending from east to west along the parallel of $12^{\circ} 30'$ South latitude, and over ten degrees of longitude ; the one extremity being in 57° and the other in 67° East longitude ; and the two lakes of the Nile, said to receive the snows from those mountains, are placed respectively in 57° and 65° East longitude, or nearly due north of the mountains ; the western lake being in 6° and the eastern in 7° South latitude.

Our existing knowledge of the portion of the African continent thus described by Ptolemy, proves the substantial correctness of his description. That he should not have laid down every particular so accurately as we are enabled to do, cannot be raised as an objection against his knowledge or the use he made of it, the information obtained by him having been of the most general character. He has himself placed on record that the latitude assigned by him to Rhapta was deduced from the distance supposed to have been run by certain merchant-vessels during a certain number of days ; and the wonder is that his estimate of its position should have been (as I shall show it is) in error to the extent

only of one degree of latitude. As to the distance of the lakes from the coast, the information was equally uncertain and indefinite; the master of a Greek trading-vessel having told him, that these lakes were not close to the coast, as had been supposed, but much further inland.

Where particular information was wanting, Ptolemy was of course guided by certain general principles in the arrangement of his materials; and we may conceive him to have acted in the same way as a skilful and prudent chartographer of the present day would act under similar circumstances.

In the first place, the river Nile being known to come from the south, but there being no certain data for fixing the precise longitude of its upper course, it would be natural to lay it down as running about south of Alexandria, where the author wrote; and that city being placed by him in $60^{\circ} 30'$ East of Ferro, the Upper Nile might safely be laid down, in round numbers, in 60° East. The position of the two lakes would be determined by placing the one next to Rhapta in the same latitude as that port, and the more distant one (always in round numbers) one degree nearer the equator; the two having been described to him as lying a little to the northward of Rhapta. Their respective longitudes, 57° and 67° East, would result from placing them about equidistant from the general course of the river with which they were understood to be connected, the mean longitude of which may be taken at 62° East.

As regards the snowy "Mountains of the Moon," if

it be assumed that Ptolemy did not obtain any definite information respecting their position and direction, he would have been warranted in supposing their general bearing to be at right angles, or nearly so, to the course of the Nile; such being the relative direction of the Western Ghauts of India and the Andes of South America, and indeed of mountain chains generally, to the rivers rising in and flowing from them. The course of the Nile, then, being from south to north, the natural presumption would be that the Mountains of the Moon extended from east to west. Such would have been the case in the absence of all definite information or preconceived notions on the subject. But if, as must have been the case, Ptolemy had learned that the one lake lay considerably to the westward of the other, the argument becomes conclusive; for, in the absence of opposing reasons, he was bound to make the mountains run from east to west, in preference to any other direction, in order that the two lakes of the Nile might receive the water from the melted snows of the mountains.

In attempting to fix in the map of Africa the true position of Ptolemy's lakes and sources of the Nile, we must discard all notions of their having been determined *absolutely* by means of astronomical observations, special maps of particular localities,* or otherwise, and

* This strikes at the root of the arguments in Dr. Albrecht Roscher's otherwise clever little work "Ptolemæus und die Handelsstrassen in Central-Afrika." Dr. Roscher is now gone on a journey of discovery in Eastern Africa, where I most cordially wish him every success.

regard them simply as derived from oral information, and as laid down *relatively* to some well-known point or points on the coast. Unfortunately his delineation of the east coast of Africa, though correct in its main features, is so faulty in its details as to be insufficient for the identification of any particular spot. For this purpose it is necessary to have recourse to other authorities. And we possess a much surer guide in the "Periplus of the Erythrean Sea," a work which, though attributed to the historian Arrian, is apparently of later date and in all probability a composition of the end of the second century. This valuable work, especially that portion which treats of the east coast of Africa, has found a skilful commentator in Captain Guillain of the French Navy, whose researches,* aided by a thorough local knowledge, have superseded the labours and conclusions of previous commentators. He confirms the opinion of D'Anville, Vincent and De Froberville, that the island of Menuthias is Zanzibar; and he considers that the emporium Rhapta, two days' voyage beyond that island, must have been situate on the river Lufidji, in 8° South latitude, which he consequently identifies with the Rhaptus of Ptolemy. †

In the accompanying map showing the Mountains of the Moon, the two lakes and the Upper Nile according to Ptolemy, the position of Rhapta is assumed to be as determined by M. Guillain, and the several other par-

* "Documents sur l'Histoire la Géographie et le Commerce de l'Afrique Orientale," 8vo., Paris, 1857.

† *Op. cit.*, part i., p. 120.

ticulars recorded by the Greek geographer are laid down *relatively* to that assumed position. And as Ptolemy placed this town in 8° South latitude, while the mouth of the Lufidji is in 7° South latitude, the result will be to move Ptolemy's map one degree northward. For the purpose of comparison, the lakes, snowy mountains, and Upper Nile, are marked in the same map from the best and most recent information ; and it will be seen how accurate must have been the knowledge possessed by Ptolemy, and how well he availed himself of that knowledge, to have enabled him to approach so near the truth. It will be an instructive lesson to speculative geographers to compare this map with those in Mr. Cooley's two works, “ Inner Africa laid Open,” and “ Claudius Ptolemy and the Nile,” published respectively in the years 1852 and 1854.

A prominent feature of Ptolemy's description of the Mountains of the Moon is that they were situate to the west of a nation of cannibal negroes, dwelling along the coast of the Barbarian Gulf. The existence of cannibals in South-eastern Africa has been repeatedly asserted : that they are still found there is a fact not to be called in question. The Makua or Amakoua, whose country extends along the east coast south of Cape Delgado, have been described to M. Eugène de Froberville by one of their chiefs, as cannibals of the most ferocious and sanguinary character. Not only in their wars with the Portuguese, but in the frequent feuds among the tribes themselves, “ the hands and head of a vanquished enemy are brought in triumph into the presence of the chief ; and the flesh of these bloody

trophies is then boiled or roasted, and eaten by the conqueror, whilst the skull serves him as a goblet.”*

The country where Ptolemy places his *Æthiopes Anthropophagi* is not precisely identical with that of M. de Froberville's savage Amakoua; the former having inhabited the coast from Cape Prasum or Delgado northward, whilst the latter extend southward from that cape. The two are however so close together as reasonably to allow the habits of the one people to be assimilated to those of the other; even if in the Greek geographer's time the natives of the coast near Rhapta and Menuthias were not themselves obnoxious to the charge of cannibalism.

Here then on the east coast of Africa, to the south of Zanzibar, is the real country of the Nyam-nyam, Lem-lem, Yem-yem, Dum-a-dum—a name written in a variety of forms, all having the same meaning, namely that of man-eaters. And the determination of the true position of this country is an important link in the chain of evidence, proving Ptolemy's intimate knowledge of these localities.

A reason has yet to be given for the designation τὸ τῆς Σελήνης ὄρος, or the “Mountains of the Moon”—das Mond-Gebirge—attributed by Ptolemy, to the snowy mountains containing his sources of the Nile.

An opinion not uncommonly entertained is, that the name reached the Greek geographer through the “Sabæans” or ancient Arabian traders, and that its

* “Notes sur les Mœurs, Coutumes et Traditions, des Amakoua,” in *Bulletin de la Soc. Géogr.*, III sér., vol. viii., p. 313.

original meaning had no connexion with *the moon*. Indeed, the Arabian geographers of the middle ages, by pointing the word قمر with a *damma* instead of a *fathá* (قَمَر instead of قَمْر), so as to read *Djebel el Kómr*, sought to give the name a totally different signification. In support of this derivation various fanciful reasons were given, which are cited by De Sacy in his version of Abdu-l-Latif's "Relation d'Egypte."

The question whether or not those writers had any real grounds for their opinion resolves itself into this: — Did Ptolemy translate his Σελήνης ὄρος from the Arabic جبل القمر (whatever may have been the derivation of this latter expression); or was the Arabic name derived from the Greek? Not many years ago the answer to this question might have been difficult, and even doubtful: at the present day it is easy and decisive.

The word *kamar*, as I have already had occasion to show in the twentieth volume of the "Journal of the Royal Geographical Society" (p. 290), does not belong at all to the *ancient* Arabic, but simply to the comparatively modern language in which Mohammed's Koran is written; neither is it to be met with in any other "Semitic" dialect. The "Sabæan" language spoken by the navigators and traders of Southern Arabia, with whom the Tyrians, the Israelites, and the Egyptian Greeks, came in contact by way of the Red Sea, and from whom Ptolemy may be presumed to have obtained (either directly or indirectly) his information respecting

the "Mountains of the Moon," was the now well-known Himyaritic, of which the living representative is the Mahrah or Ekhili. And in this language, both ancient and modern, as well as in the *Ethiopic (Axumite) ancient and modern, and likewise in many other languages on either side of the Red Sea, and even far into the interior of Eastern Africa, the word *warkh*, or something closely resembling it, signifies "moon." This will be seen from the following list:—

Himyaritic, ancient (Sabæan)	<i>warkh</i>	Rödiger
do. modern (Mahrah)	<i>warakh</i>	Carter
Amalckite	<i>warkh</i>	Tuch
Ethiopic, ancient (Geez)	<i>warkh</i>	Ludolf
do. modern (Tigrean)	<i>warkhi</i>	Beke
Amharic	<i>war</i>	Isenberg
Harargie	<i>warkhi</i>	Beke
Arkiko	<i>werha</i>	} Salt
Dankali	<i>berra</i>	
Darfur ("star")	<i>wirhe</i>	
Sechuana	<i>werri</i>	


In the cognate *northern* Syro-African languages, usually but erroneously called "Semitic," the letter *waw* of the word *warkh* is replaced by *yod*.

Canaanitish,* Sidonian	} <i>yerakh</i>
Hebrew	
Chaldee (Jewish)	
Syriac	<i>yarkho</i>

* The identity of the Biblical Hebrew with the ancient Sidonian is now established, the differences between them being so slight as

Admitting then that Ptolemy derived his “Mountains of the Moon” from the natives of Southern Arabia, it is manifest that he must have done so by means of the word *warkh* and not *kamar*. And thus, at one blow, are annihilated all the fanciful stories to which this later word—or *qmar* or *gamar*, as it is sometimes written—has given rise, and all the arguments based on those stories.

That, on the other hand, the Arabian writers of the middle ages should have translated Ptolemy’s Greek name into the language of their time, is reasonable and intelligible. Masudi, one of the earliest and most celebrated of them, who flourished in the tenth century of our era, was thoroughly acquainted not only with the works of Ptolemy, but also with those (now lost) of Marinus of Tyre; and nothing is more natural than that he should have adopted from them the “Mountains of the Moon,” in common with much more which he is

to be regarded merely as provincialisms, and not as constituting distinct dialects. The language spoken by the Israelites must therefore have been acquired by them during their residence in the Land of Canaan; and it should consequently be denominated *Canaanitish*, as a member of the Hamitish, Hametic, or Syro-African class of languages, and not “Semitic;” which name, though it may designate the lineage of the descendants of Abraham, is wrongly given to the language spoken by the Hebrews after they had quitted their native country. I learn from my friend Mr. Edwin Norris that, “in a fragment of an old Assyrian syllabary found at Nineveh, the monogram , which means *month*, is read phonetically <|>| <|-|<| *arrlu*: possibly it means *moon*.” Assuming the language in question to be the earliest spoken at Nineveh, it may be called “Nimrodic,” after the Hamite founder of that city.

known to have taken from those geographers. The tales of the later Arabian writers are only attempts to explain a name, of the origin and signification of which they had lost the tradition ; and the fact that the word *kamar* is not of pure Arabic lineage, probably led them to regard it as a corruption of *komr*, with respect to which latter they may not have entertained similar doubts.

The writings of the Arabian geographers contain, without doubt, much important information respecting the Upper Nile and the various tributaries of this river ; but, unfortunately, together with that information is blended so much that is fabulous, incorrect, or uncertain, as to render them, like the works of Strabo and Pliny, unavailable for practical purposes. When, however, our knowledge of the basin of the Nile shall have become more accurate and complete we shall be in a position to study the writings of those authors with a view to determine the real extent of their acquaintance with the subject. Till then, they resemble the famous description of the various kinds of Egyptian hieroglyphics given in the *Stromata* of Clement of Alexandria ; which, far from aiding in their decipherment, requires a previous intimate knowledge of the hieroglyphics themselves to render it intelligible.

The supposed Arabian origin of the designation "Mountains of the Moon" being thus disposed of, there appears to remain only this alternative as to its derivation. Either these mountains must be called from some native name resembling the Greek word

Σελήνη (*Moon*), or else they derive their appellation from some native word having this signification, of which the Greek expression is a translation.

Mr. Cooley, in his “ Claudius Ptolemy and the Nile,”* advocates the former derivation, and identifies the snowy mountains of Σεμῆναι, *Semenai* or *Samien* in Northern Abessinia with these Mountains of *Scène* or “the moon.” This notion is irreconcilable with all the other particulars recorded by Ptolemy respecting the Nile and its branches, and is in fact so preposterous as to be undeserving of notice, were it not formally put forth by a writer, who, having devoted much time to the study of African geography, is not unnaturally regarded as an authority by those who have not directed special attention to a subject generally so little understood. How Mr. Cooley should be so unreasonable is easily explained. He finds it hard that opinions entertained by him during many years, and repeatedly advocated by him in public, should be opposed by facts; and he prefers denying the existence of the facts, rather than, by acknowledging them, to be forced to admit their inevitable consequence — the overthrow of his long-cherished opinions. Hence my hypothesis respecting the “Mountains of the Moon” which was first advanced in 1846, when the facts in support of it were few, and consequently my arguments were in a great measure *d priori*, was contemptuously designated “the Lunatic System.” When, about two years afterwards, the cor-

rectness of my hypothesis was in great part established through the discovery made by the Church Missionaries of the snow-capped Kilimandjaro, he explicitly "denied the existence of snow on Kilimandjaro ;"* just as, at a more recent period (1856), he broadly contradicted Dr. Livingstone's statement of the union of the river Lee-ambe with the Zambezi. And at length, when facts went on rapidly accumulating in favour of my interpretation of Ptolemy's text, he had no course left but to assert that the passage, in which the sources of the Nile in the Mountains of the Moon are mentioned, does not belong to the author's text at all, but is an interpolation of comparatively recent date. After this, as may be easily conceived, Mr. Cooley finds no difficulty in "supposing a train of reasoning, not only natural but under the circumstances inevitable," by which the Mountains of the Moon are placed in Northern Abessinia.

Passing over these fancies, I have only to add that in no part of Africa, where any of the sources of the Nile can be situated, have I been able to find traces of a native name at all resembling the word *Selene*. The interpretation from similarity of sound must therefore be abandoned ; and we have to seek in the proper

* On the publication of Mr. Cooley's unmeasured attack on the Church Missionaries and myself in the *Athenæum* of May 19th, 1849 (No. 1125, p. 516), the late Sir Robert Peel, then Prime-Minister, was so struck with it, that he requested my esteemed friend, the late Sir Thomas Dyke Acland, to ascertain whether dependence might be placed on the report of the Missionaries.

locality a country of whose name the Greek expression may be considered a translation.

Such a country does really exist called "Monomoezi,"* or that portion of the interior of Africa inhabited by a people called by the Sawáhilis Wanyamuézi, near which are situated the great lakes noticed in a preceding page,† and in the vicinity of which are the snowy mountains and the southernmost sources of the Nile.

Mr. Cooley, who, notwithstanding the low opinion I am compelled to entertain of his judgment, is entitled to respect as an elaborate investigator and compiler of the authorities bearing on the subject, thus expressed himself respecting the country in question fourteen years ago:—"The name Monomoezi, or, as it ought perhaps to be written M'wana M'wézi, is a political appellation, M'wana implying sovereignty. From Congo across to Zanzibar this word takes the various forms of Mani, Mucni, Muana, and Buana, which last signifies 'master' in Sawáhili. The original meaning however of the word, which is always prefixed to the name of the land giving the title, is probably very different. The geographers of the seventeenth century took care to point out the fact that the empire of Monomoezi lies immediately round the Mountains of the Moon. They would have been delighted had they known that *moezi*

Captains Burton and Speke, who have just returned from that country, write "Unyamwezi." I do not alter the name in the text, as my arguments, which were written several months ago, will be clearer by retaining the original spelling.

† Page 15.

signifies in Sawáhili and Mucaranga 'the moon,' in Bunda *riegi* or *moegi*.*

It was thus Mr. Cooley expressed himself in 1845. Seven years later he materially changed his opinion, and wrote as follows:—"The Sawáhili pronounce either Moénemoézi (Mwéne M'wézi) or Mánamoézi, and write the latter; but probably their practice is not invariable. The name of the Moon is written *mezi* and not *moézi*. They sometimes form a personal plural Wanamoézi after their fashion, just as we would add an *s*; but they do not pretend to vindicate the correctness of the expression, which is in fact but a makeshift. They apply the same name to the country and to the individual native of it, and they know nothing of the word *Uniamoézi*, or as Dr. Krapf writes it *Uniamesi*. This word, which Dr. Krapf, who coined it, renders 'possession of the Moon,' rests on abuse of analogy, and an imperfect perception of the first principles of the language It says nothing for such fabricated words that natives will adopt them Natives, round an European will adopt any jargon that meets his wishes or capacity. The Portuguese in Africa soon learned that, in the names Mofo-motapa and Mono-emugi, the first word Mono, Muna, or Muene implies a sovereign. The King of Portugal is known across the continent as Muene Puto. In two of these examples the second word is the name of the territory (Motapa and Puto, or Portugal). Then why not in the third also? If

* "Journal Roy. Geogr. Soc.," vol. xv., p. 211.

Muenemoézi be the 'possessor of the moon,' surely his territory is 'the moon,' and not the 'possession of the moon.' This moon-struck etymology exhibits sad drivelling. The Sawáhili have no idea of any connexion between Moenomoézi and the earth's satellite."*

But, as has just been shown, Mr. Cooley himself declared that,—“The name Monomoezi, or as it might perhaps be better written M'wana M'wézi, is a political appellation, M'wana signifying sovereignty ;”—that this word “is always prefixed to the name of the land giving the title ;”—and that “Moczi signifies in Sawáhili and Múcaranga the moon.” And Captains Burton and Speke have placed UNYAMUEZI in the map of Africa ; and there, *pace Cooleii*, it will remain, however much it may “rest on abuse of analogy and an imperfect perception of the first principles of the language” of the “drivelling” natives who make use of the word, which, after all, appears *not* to have been “coined” by my worthy friend Dr. Krapf.

It is not impossible that the name has nothing to do with either sovereignty or the moon. For the sake of argument it shall be admitted that neither the Sawáhilis nor the Wanyamuézi themselves have any idea of connexion between it and the earth's satellite. What then? It is not what “Monomwézi” really means, but what it may be or may have been understood to mean. From Congo and Angola to Mozambique, over almost the entire continent of Africa south of the equator, as was

* “Inner Africa Laid Open,” p. 64.

first shown by Marsden, a class of cognate languages extends, in which the word *moézi*, or something closely resembling it, means *the moon*,* and must have had the same meaning long before the time of Ptolemy. Is it then surprising that the Arabians or Greeks who traded with the east coast of Africa should have heard the Sawáhilis speak of “Monomwézi,” or some such name, and that, on inquiring the meaning of the expression, they should have been told that *mono* means “sovereign” and *moézi* means “moon,” just as Mr. Cooley was informed previous to the year 1845? And, as that writer tells us that the former word “is always prefixed to the name of the land giving the title,” it follows that Moezi would have been regarded as the name of the land itself; whether rightly or not, in a strictly etymological sense, is immaterial.

It does not by any means follow that a proper name, however significant it may appear in the language through which it is communicated to other nations,

* Kongo . Muezi	} Marsden	Subálo..... Mbesi	} Koelle	
Mozambique Moïse		Kisáma.... Mbesi		
Ditto Muezi	Bleek.	Muntu..... Moesi		
Miyao..... Mueze	Salt	Kiriman... Moere		
Sawáñli.... Moezi	} Cooley	Maráwi.... Moezi		
Mucarange.. Moezi		'Meto..... Moezi		
Bunda..... Moezi		Mátatan... Moere		
Wanika.... Muezi	} Krapf	Inhanbane Mugi		} Bleek
M'segúá... Muezi		Sofala..... Muedze		
Bin'zia..... Muezi	De Froberville	Tette..... Muezi		
Angola..... Mbeze	} Koelle	Sena..... Muezi		
Pangéla.... Ombei		Quellimane Muere		

should be equally significant in its own language. The Sea of Edom, in the language of Canaan, of which the Phœnician and Hebrew are the representatives, is אֶדֹם יָם, which, as Edom means *red*,* would by other nations be understood literally as meaning the *Red Sea*, and hence the Greeks derived their Ἐρυθρὰ Θάλασσα, which has been translated into other languages, so that all trace of the etymon is lost. In like manner the Indian name of the island of Java was translated; but fortunately in this case Ptolemy has preserved the evidence of the translation. His words are Ἰαβαδίου, ὃ σημαίνει κριθῆς νῆσος—“*Iabadίου*, which signifies *Barley Island*.” In the Kavi language *djava* does really mean “barley,” and *dwiṭṭe* means “island;” and the name “*Djava-dwiṭṭe*” (Ptolemy’s *Iabadίου*) occurs in an ancient inscription in that language published by Sir Stamford Raffles.† It is not, however, to be imagined that this tropical island derived its appellation from a grain which, if produced there at all, could only be an exotic cultivated with difficulty. The probability is that the Indian people who conquered the island met with some aboriginal name more or less resembling *Djava*, which they adopted and made significant. Persons of all times and nations of uncultivated minds are fond of making unknown names significant. Indeed, we are all etymologists in spite of ourselves. Our English sailors in the Mediterranean have made Leg-horn out of the

* See Genesis xxv. 30.

† A complete translation of this inscription, by Dr. Friederich of Batavia, is given in *Zeitschrift der Deutschen Morgenländischen Gesellschaft*, Bd. x., p. 591.

Italian Livorno, but no one would think of attaching a meaning to this barbarous corruption. Yet Cape Horn, or "the Horn," as it is called by sailors, to distinguish it from "the Cape" of Good Hope, may perhaps figure in the geography of some future Ptolemy as *Nόρου κέρας*, "the *Horn* of the South," quite regardless of the Dutch navigator Van Hoorn, who discovered and gave his name to the southernmost point of America.

Had Ptolemy treated the name "Monomoezi" in the same way as Djava-dwipe, the case with regard to the former could hardly have been clearer, when we consider how all the essentials—cannibals, snowy mountains, two lakes, and the southernmost sources of the Nile—meet in a locality so precisely answering to his description. The only objection that might perhaps be raised is that the mountains which I consider as representing that geographer's Mountains of the Moon (Mwezi), are not within the country inhabited by the Wanyamwézi. But this objection is more specious than real; for who shall define the limits of the regions to which that name was formerly, or is even at the present day, applicable? And even if the name be restricted to the country immediately surrounding or adjoining "the lake of Monomoezi," it would be natural for a stranger unacquainted with the chorography of the country to conclude that, as this lake was in the country of "Moezi" or the Moon, so must likewise be the mountains from whose snows it is said to be fed.*

* In identifying the mountains 6000 or 8000 feet high between the two lakes with Ptolemy's "Mountains of the Moon," Captain

In conclusion it appears that in the second century of our era the ancients, as represented by the geographer Claudius Ptolemy, possessed a knowledge of the Nile and its sources, fully as extensive and accurate in detail as that possessed by ourselves until quite recently, and much greater than at the commencement of the present century.

With Ptolemy and his age the knowledge of the Upper Nile reached its culminating point, from which the relapse into almost total ignorance was most rapid. In little more than a century after that geographer flourished, the condition to which the valley of the Nile was brought by barbarous invasion, rebellion and anarchy, was such, that the whole country watered by the Nile above Elephantine was abandoned to the savage tribes of the south. Afterwards, with the fall of the Roman Empire, came the dark ages. Since the Greek geographer wrote his celebrated description of the sources of the Nile in the Mountains of the Moon, seventeen centuries have had to elapse before the civilized world has again become sufficiently acquainted with the Basin of the Nile to allow the accuracy of that description to be demonstrated.*

Speke has quite overlooked a *fatal* objection. Close to the equator mountains of the elevation he speaks of can never have on them a particle of *snow*!

CHAPTER V.

THE ATBARA REGARDED AS THE NILE.

IN the early part of the sixth century of the Christian era, a Greek monk, named Cosmas, visited Northern Abessinia as a trader. At Adulis, the port of the kingdom of which the city of Axum was the capital, the traveller copied from a marble chair an engraved inscription in the Greek language consisting of two parts, both of which were regarded by him as recording the conquests of the Egyptian King Ptolemy Euergetes. The discovery made by Mr. Salt at Axum, in the year 1805, of a Greek inscription celebrating the conquests of Aizanas, a king of the Axumites in the commencement of the fourth century, has however established the fact that the latter portion of the Adulitic inscription relates in like manner to this native monarch, and not to the Egyptian Ptolemy.

Among the countries enumerated in the inscription as having been conquered by Aizanas, is "Semene, a nation beyond the Nile, among mountains difficult of access and covered with snow;" respecting which the conqueror says "in all this region there is hail and

frost, and snow so deep that the troops sank up to their knees : I crossed the river, and subdued them."

These words do not admit of doubt as to the country and river intended. The former (Semene) is the Abessinian province of Samen or Sámien, whose mountains are most accurately described as being difficult of access and covered with snow ; whilst "the Nile" and "the river," beyond which that province is said to lie, and which the Axumite army had to cross in order to reach it, is the Tákkazyé, or upper course of the Astaboras, running between Axum and Sámien.

Thus it appears that in the fourth century of the Christian era, the Axumites or inhabitants of the country situate to the east of the Tákkazyé, knew the river of Egypt as the lower course of the river of their own country ; the native name of which, "Tákkazyé," in the Geez or ancient Ethiopic language, is not a proper name, but an appellative signifying "river," the designation having been given to their native stream *κατ' ἐξοχήν*. Hence it is that, in their translation of the Hebrew Scriptures, the river whose waters were turned into blood by Moses, is called "Tákkazyé."

In like manner as the Axumites knew the Egyptian Nile as the lower course of their Tákkazyé or "river," so it would seem the Egyptian Greeks of that age knew the Tákkazyé, and no other river, as the upper course of their Nile. In the Adulitic inscription above referred to it is expressly said *Σεμηνὲ ἔθνος πέραν τοῦ Νείλου* ; and Cosmas himself, two centuries later, continued to call the river of the Axumites by the name of Nile, de-

scribing it as rising in the country of the Agaus, towards that of Sasu or Barbaria on the southern ocean, named in the Adulitic inscription as being in the extreme south-east of the conquests of King Aizanas.

This Agau country of Cosmas has generally been imagined to be Agaumider, near the sources of the Abai; but without sufficient reason. For the country of Lasta, in which are some of the sources of the Tákkazyé,* is looked on by the Agaus themselves, and by the Abessinians generally, as the head seat of that primitive people; and this Agau country of Lasta corresponds far better with the relation of Cosmas, than Agaumider in the extreme south-west of Abessinia.

It results then that, as late as the sixth century of our era, the Tákkazyé was the "Nile" of the people dwelling on its banks; and as, from the time when the Axumites were converted to Christianity (about the period of the second Adulitic inscription itself), their communication with Egypt was constant; and as there is no evidence that the inhabitants of the latter country had any certain knowledge of the direct upper course of their own river, it is not unreasonable to conclude that, in Egypt also, the Tákkazyé was commonly regarded as the upper course of the Nile.

Another argument in favour of this conclusion is, that the road by which the two countries communicated was altogether on the east side of the Tákkazyé or Astaboras and of the main stream of the Nile. King Aizanas records in the Adulitic inscription, that, when

* See page 9.

he had conquered the tribes dwelling to the north of Axum, he made them open the road from his territories into Egypt ; and this road was kept open till the time when Cosmas visited Abessinia, as we learn from his contemporary, Procopius, who states it to be a journey of thirty days, quick travelling, from Axum to Elephantine, which was then the frontier of the Roman Empire in Egypt. Even when, by degrees, the wild tribes dispersed over the great Nubian desert had cut off the direct communication by land between the two countries, the nominal if not the absolute dominion of the kings of Abessinia, as we are told by the Portuguese Alvarez, in the sixteenth century, still extended northwards to Suwakin on the Red Sea and Riffa (apparently Mekheirriff) on the Nile ; so that the Christian pilgrims, on their way to Jerusalem, were able to proceed by land as far as the former place, where they took ship for Egypt.

On this land journey the Abessinians unavoidably crossed the river Mareb, as likewise the channel by which a portion of its waters find their way to the Red Sea ; so that the knowledge of the bifurcation of this "branch of the Astaboras," which was so general in the time of Artemidorus, must have continued to exist. But, in a plain country like that between the fifteenth and eighteenth parallels of North latitude, through which the Nile, the Atbara, and the Mareb or Khor-el-Gash have their courses, and in which the Khor-el-Gash first approaches and then unites with the Atbara, and the latter approaches and then unites with the Nile, it is

easy to understand how the cutting of canals for the purposes of irrigation or drainage must, sooner or later, have taught the inhabitants the practicability of turning the waters of the one river into the bed of the other.

At what time the Ethiopians first became acquainted with the means of checking the supply of water to the lower country, and to what extent they exercised this power, we are not told. That it was before the end of the eleventh century of our era, is proved by a statement in the "Chronicles of the Saracenic Empire" of George Elmacin. This writer, who flourished about the middle of the thirteenth century, records that the Nile having failed in the time of Mustansir Billah, Khalif of Egypt, that monarch sent Michael, the Jacobite Patriarch of Alexandria, into the country of Habesh, for the purpose of remedying the evil; and the king of that country, on being acquainted with the damage sustained by Egypt and its inhabitants for want of the usual inundation of the Nile, caused the dam which obstructed it to be removed, so that in one night the river rose three cubits, and the fields of Egypt were in consequence watered and sown.

The date of this important occurrence is thus fixed. Michael was Patriarch from A.D. 1092 to 1102, and the Khalif Mustansir died A.D. 1095; consequently, the former's mission must have taken place between the years 1092 and 1095. It is useless here to attempt to ascertain who was the Christian king of "Habesh," to whom the Patriarch was sent. There is a vague tradition that it was Lalibala, a monarch celebrated for

his other great undertakings. But the received chronology of the kings of Abessinia must be considerably altered, to allow it to have been this monarch, who is generally understood not to have reigned till more than a century later ; that is to say, in the beginning of the thirteenth century, or contemporarily with the Egyptian historian, who records the event as having occurred long before his time.

Notwithstanding the objections which have been raised to Elmacin's relation, the power of the rulers of Northern Abessinia to check the inundation of the Nile and the irrigation of Lower Egypt, was in those ages a recognized fact. The Emperor John Cantacuzene, who wrote in the beginning of the fifteenth century, records that "a powerful nation, strongly addicted to the Jacobite heresy, was said to dwell on *the Nile*, whom it was necessary for the Sultans of Egypt to propitiate, because they had it in their power to turn the course of the Nile ; which if they did, the whole of Egypt and Syria, whose subsistence depends on that river, would perish with hunger."

As we advance, the chain of evidence, instead of weakening, becomes stronger. The next incident to be noticed is the proposal of the renowned Affonso Albuquerque to drain off the waters of the Nile, so as to prevent their flowing down into Egypt. This great commander made, with this view, repeated applications to his sovereign, Manuel king of Portugal, for workmen to be sent from the island of Madeira, who were practised in digging canals for the irrigation of the

sugar plantations there. In proof of the feasibility of his purposed undertaking, Albuquerque explained that from the shores of the Red Sea to the Nile is a distance of only three days' journey, and that in the intervening districts there dwelt many Arab tribes who, in order to avenge themselves for injuries received from the Sultan of Egypt, with whom they were often at enmity, occasionally broke down the banks of the Nile, whereby the waters of the river were diffused over the extensive valleys of their country. In consequence the Sultan, in order to avert the injury that Cairo would sustain, were the more elevated districts usually inundated by the Nile to remain uncultivated, at times attacked these Arabs with arms, and at other times induced them by gifts to continue his friends.

Albuquerque has been condemned for entertaining a scheme impracticable in itself and immoral in its object. After the perusal of the present pages, no one will continue to impute to that great statesman ignorance or presumption in proposing an undertaking so perfectly feasible. As to its immorality, we must look to the times and circumstances, before pronouncing a judgment, to which in the abstract all acts of aggression and violence are not less amenable; though, according to the ordinary course of human affairs and man's estimation, they may be deemed unavoidable or even justifiable.

The discovery then recently made by the Portuguese of the road to India round the Cape of Good Hope, had the inevitable consequence of turning a large portion of the commerce of the East into this new

channel, to the serious injury of the Venetians, who had enjoyed the monopoly of that trade through Egypt and the Levant. To obviate this calamity, the Venetians did not scruple to lend their aid to the Mohammedan ruler of Egypt; and in order to enable him to cope in the Red Sea with their commercial rivals, they built him a powerful fleet of ships at Suez, for which they supplied the timber, cut in their own forests of Dalmatia and transported on camels across the isthmus of Suez. Such an alliance between a State professing Christianity and the mortal foe of Christendom, in an age when religious feelings were so fervent and so strongly manifested, must have been regarded with horror and as almost unnatural, by so religious and zealous a Christian as Albuquerque unquestionably was; and he would in his conscience have deemed it a most pious and meritorious act to destroy by famine the Mohammedans of Egypt. In fact, such a measure, had it been adopted, would only have been in keeping with the contemporaneous expulsion from Spain of the Moors and Jews, and the establishment there of the Inquisition; which acts, far from causing either blame or shame to the intolerant Ferdinand, were felt to be so meritorious as to render him worthy of the title of the Catholic King.

This grand scheme of Albuquerque, to which was joined that of attacking and destroying the "holy" cities of Mekka and Medina, was not carried out; neither did the proposal to a similar effect made shortly afterwards by David king of Abessinia to King Manuel of Portugal meet with favour. And as the Turkish

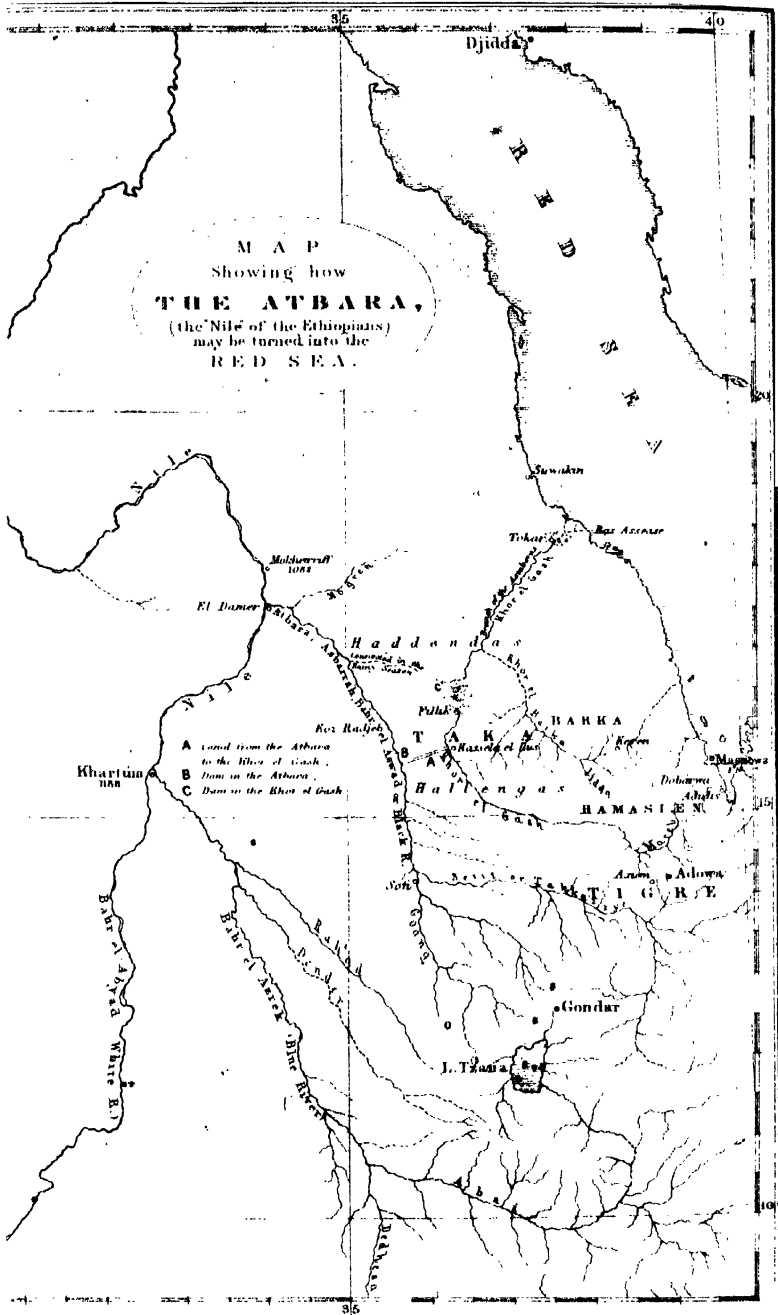
conquerors of Egypt had now acquired the supremacy of the Red Sea, and occupied the ports of Suwakin and Massowah ; whilst, on the other hand, the Mohammedans in the south-east of Abessinia, and afterwards the pagan Gallas, began their inroads into that country, from the effects of which it has never recovered ; the rulers of this once powerful empire were deprived of the means, whether for good or for evil, of interfering with the waters of the Nile.

In the beginning of the sixteenth century, it was a matter of popular belief in Europe that the king of Abessinia could prevent the Nile from flowing down into Egypt, and that the ruler of the latter country had in consequence to pay him a large yearly tribute. This is manifest from the verses of Ariosto :—

Si dice, che'l soldan, rè dell' Egitto,
 A quel rè dà tributo, e sta soggetto.
 Perchè è in poter di lui dal cammin dritto.
 Levare il Nilo, e dargli altro ricetto ;
 E per questo lasciar subito afflitto
 Di fame il Cairo, e tutto quel distretto.

The tradition of the performance of the undertaking in times past, and of its practicability, was likewise preserved in Abessinia, as appears by the statement of Abba Gregorius. This intelligent native of Shoa, who visited Europe towards the end of the seventeenth century, informed his friend the learned Job Ludolph that, though he was unacquainted with the particular history of the patriarch Michael, he had heard from

* "Orlando Furioso," xxxiii. 106.



MAP
Showing how
THE ATBARA,
(the Nile of the Ethiopians)
may be turned into the
RED SEA.

- A** Dam from the Atbara to the River of Gash
B Dam in the Atbara
C Dam in the River of Gash

trustworthy persons that, not far from the cataracts of the Nile, the entire country slopes towards the east; and that, were it not for one single mountain, the Nile would flow in that direction rather than towards Egypt and the Mediterranean. Consequently, were that mountain cut through, which would be a work of no great difficulty, the entire river might be turned into the Red Sea. This fact, he added, was known to the Turks and to many Portuguese; and hence it was, that, formerly, the Emperor of Ethiopia had obtained signal conditions from the Saracens; and that, having at one time wished to carry the work into execution, he had given orders to that effect, but had been moved from it by the Christians of Egypt, whose destruction it would have caused in common with the other inhabitants.

It is evident that Abba Gregorius had here transferred the site of the operation from the Atbara or lower course of the Tákkazyé,—the “Nile” of the second Adulitic inscription and of Cosmas,—to the main stream of the Nile below the junction of the former river, whereby he rendered it a work of much greater difficulty and of a totally different character.

Ludolph himself, in commenting on the several points of information above alluded to, most sensibly remarks that the country in which the Nile might be turned, was probably no longer in the possession of the Abessinian Christians, but in that of the Moslems. On the other hand, he, less reasonably, suggests that some of the head-streams of the Nile in Upper or Southern Abessinian might perhaps be turned, in the direction of the

Indian Ocean, down the declivities of the mountains into the sands below, and the waters of the main stream thereby diminished.

This suggestion on the part of Ludolph appears to have led Bruce to protest against "the wild idea of turning the course of *the Nile* out of its present channel," and at the same time to explain the matter, after his fashion, by an apocryphal story, alleged to have been told him by Emmaha Yésus (Anha Yásous), prince of Shoa, a young man between twenty-six and twenty-eight years of age, with whom the traveller lived several months in the most intimate friendship at Gondar, and from whose mouth he received some minute and circumstantial details respecting certain works, constructed in Shoa by Lalibala, king of Abessinia, for the purpose of turning into or towards the Indian Ocean certain head-streams of the Nile within that kingdom.

Unfortunately, the whole of this circumstantial history rests on no foundation. Half a century ago, Mr. Salt was led to doubt the tale, in consequence of the assurance given him by a native scribe, who had personally known Bruce in Abessinia, that Emmaha Yésus never visited Gondar during that traveller's stay there, and from the fact that no account of that prince's alleged visit is to be found in Bruce's original memoranda, where it could hardly have failed to be recorded. Since Salt's time, the kingdom of Shoa has been visited by several Europeans, myself among the number; and it is now known, as an historical fact, that the reign of

Emmaha Yésus, the great-grandfather of the late King Sáhela Solássye, lasted from 1742 to 1774 ; so that, in the year 1770, when Bruce pretends to have known that prince at Gondar, as a young man between twenty-six and twenty-eight years, who had brought tribute from his father as a vassal of the Emperor, Emmaha Yésus had himself been upwards of twenty-eight years seated on the throne of the independent kingdom of Shoa. It might be shown that the description so elaborately given by Bruce, on the pretended report of Emmaha Yésus, of the gigantic works constructed by King Lalibala in the vicinity of Lake Zuwái in Southern Abessinia, is simply a romance. But it is needless to pursue the subject. It is merely requisite to remark that, so intimately has Bruce's circumstantial narrative associated King Lalibala and Lake Zuwái with the traditional history, and so thoroughly have, on his authority, those two ideas become blended with the primary one, that subsequent travellers and writers have taken their connexion for granted, and have treated the subject as if Bruce's fallacious commentary were an integral and essential portion of the original tradition.

The time has however arrived when the whole of these erroneous notions may be discarded. The Astaboras, Atbara or Tákkazye, is the " Nile " of Elmazin, Cantacuzene and Albuquerque : and the channel by which its waters might be made to pass into the Red Sea is Artemidorus's " branch " of that river, or the lower course of the Khor-el-Gash.

At the present day the plain country lying on the eastern side of the Atbara, formerly subject to the Axumite or Ethiopian monarchs, is occupied by tribes of doubtful origin, who continue to avail themselves of the facilities afforded by the physical character of the land, for diverting the course of the river flowing through it, and preventing its waters from reaching the regions lying lower down the stream; though in this instance it is not the Atbara itself, but the Khor-el-Gash, on which the operation is performed.

M. Ferdinand Werne, who in 1840 accompanied the Turco-Egyptian army under Ahmed Pasha in its campaign against Taka and the neighbouring districts, gives, in his published relation of the expedition, a circumstantial account of an attempt made by the Pasha, at the suggestion of Mohammed Ehle, one of the native chiefs, to dam up the Khor-el-Gash near Kassela-el-Lus, and to turn its waters into the Atbara. The attempt failed, from the works having been badly constructed; but the particulars recorded by M. Werne sufficiently prove the practicability of the undertaking under more favorable circumstances.*

* The following extract (in translation) from M. Werne's *Feldzug von Sennaar nach Taka, Basa und Beni Amer*, pp. 216-219, gives the particulars of these remarkable proceedings:—

“The hatred of these people to one another is excessive; so that *divide et impera* is a principle of Egyptian policy. Mohammed Ehle—who has been nominated by the Divan Sheikh of the Hallengas, because Sheikh Auet, the hereditary ruler acknowledged by his people, will not submit to the Turks and has in consequence retired to the frontiers of Abessinia—had formed in his pious head

But if, as appears from M. Werne's statement and from what we otherwise know of the extremely level character of the country, the waters of the Khor-el-Gash may be turned into the Atbara by means of a

the idea of driving, with the assistance of the Turks, the Haddendas from their country, or if possible of annihilating them altogether. The great Khor-el-Gash runs in its entire breadth and with its branches (as for instance the one by El Sofr), through the country of the Haddendas. It is this water-course which carries an abundance of water to that great people and to their fertile lands, as likewise here and there to the impenetrable forest districts (Khaaba), those homes of freedom so dreaded by the Turks. This life-bringing artery was now, by the advice of Mohammed Ehle—who had before attempted it, but in vain—to be unmercifully cut off. As the engineer and confidant of the Pasha, I was compelled to give a helping hand. Mohammed Ehle, the Pasha and myself, mounted our dromedaries, and, followed at a distance by an escort, rode southwards about a couple of miles, leaving the village of Kadmin at about a mile on one side. . . . We came to the extreme western rocks of Kassela-el-Laus, which stretch out into the *chor*. The *chor* is here tolerably deep, and consequently not so wide as it is both above and below; so that this spot was well suited for the erection of a dam across the stream. The Pasha forthwith ordered a division of the army, with 4000 axes, to fell the palm-trees, which grow only in the neighbourhood of the *chor* and as far as its inundation extends. . . . The Hallengas, who are nothing like so savage or so refractory as the Haddendas, submitted patiently to render tribute and to deliver an immense number of straw mats, which were wanted for the formation of the dam.

“By the following morning, a quantity of felled palm-trees lay scattered in the *chor* at the appointed spot. The direction of the dam was from N.E. to S.W., the main bed of the *chor* being 1220 mètres in breadth. I at once informed the Pasha that it

mere embankment and canal, the converse must be likewise practicable ; that is to say, the waters of the Atbara might by similar means be turned into the bed of the Khor-el-Gash ; or to express it more distinctly, they might be discharged into the plain country of

would be necessary to dig a canal beyond the opposite bank of the *khor*, which is of some height, as far as the basin of the river Atbara, so as to prevent the waters from overflowing. The dam was formed of a double row of palm-trees, placed close together upright and covered with mats on both sides, sand being filled in between the two rows. As soon as this was completed to a certain height, other mats were added, till at length the height of five mètres was attained. To prevent the trees from giving way, and also in order to break the force of the water from above, the dam was scarpèd at an angle of forty-five degrees. On the rocks of the right bank, where the water seemed principally to pour down, bags and straw mats filled with sand were laid in considerable quantities. From time to time the work was hastened by the beating of drums and especially by the presence of the Pasha. This was the more needful, as the rainy season had already commenced, vegetation was springing up as if by magic, and the *khor* might easily have been filled with water before we could have opposed to it this first bulwark. I examined the land on the opposite side, which was covered with trees (principally the *atle*), and found an arm, which had to be dammed as well as the main stream. On account of its greater depth, and the consequent greater weight of water in it, a triple row of trees had to be placed here. In order to prevent the dam in the principal *khor* from being injured by the force of the tropical rains, I caused a row of palm-trees, in half lengths, to be placed before it, and in like manner to be filled in with sand in mats. This formed an addition of 270 mètres. Scarcely had we completed this work, when the rains from the Abessinian mountains converted the *khor* into a lake. It was now manifest that though the

Taka, over which (as has been shown in a preceding page)* the waters from the Abessinian highlands spread themselves during the rains, and from whence, at Fillik, they pass away by two different outlets, the one into the Atbara itself lower down its course, and the other

level had been properly calculated, yet that the waters, in their rise, would overflow the woody country at either end of the dam. Almost all the soldiers were sick in consequence of their bad food and the burning sun. . . . I therefore proposed to the Pasha to continue the dam by means of an earth-wall, and to call on Mohammed Ehle and his people to perform this task. . . . By this means the dam was continued, so that it had a length of 1613 mètres, with a breadth of five mètres at top. The Haddendas below were beginning to suffer from the stoppage of the water, which now stood in the main *chor* at the height of three mètres. Bloody feuds began to break out between the Haddendas and the Hallengas, and I already repented my inhuman work. I therefore no longer insisted on the excavation of a canal for conveying the water beyond the slight elevation of the land, a distance of six miles, into the Atbara, and fully anticipated what would be the consequence. One morning the Pasha stopped his horse at the door of our dwelling, and woke me out of my sleep with his 'Musju' [Monsieur]. There was a frightful noise in the camp; everybody was running out; the dam had been broken through. I had to mount instantly, and on the road learned that the Haddendas, in spite of a guard of two hundred men placed to watch it, had pierced the Arabian structure. . . . Thus all the fine plans for drying up the entire fertile country of the Haddendas, and burning their *Sylva Hercynia*—or, as the Pasha, by way of palliation, expressed himself to me, for forming a huge sluice in the dam, and then selling the water to the Haddendas—were, if not entirely frustrated, at all events put off to a future day."

down the valley leading towards the Red Sea near Suwakin; and the one of those two outlets being closed, the entire waters would of necessity pass away by the other.

Sir John Bowring, in his "Report on Egypt and Candia," mentions that M. Linant, in alluding to the Abessinian tradition that art might stop the course of a portion of the waters of the Nile, or direct them in a different channel, expressed the opinion that the Atbara, or as he calls it the Asbarrah (which name approaches more closely to the ancient Astaboras), might easily be turned into the Red Sea at Suwakin; for the reason that it passes over plains and sands, and that the remains of a bed or canal, already traced by human hands, exist from the Asbarrah to the Red Sea. It is not stated whether or not M. Linant spoke from his own personal knowledge; but there can be no doubt that he alluded to the *khov* or valley from Fillik to Tokar, up which MM. de Malzac and Vayssière ascended in 1852.

The relation of Elmacin must therefore be accepted as the record of an historical fact, and the proposal of Albuquerque be no longer regarded as chimerical.

In an engineering point of view, the project presents no difficulties of any moment. At Mèkheiriff in 18° North latitude, near the northern limit of the tropical rains, and just below the junction of the Atbara with the main stream of the Nile, the absolute elevation of the river is 1082 English feet; and this spot being

distant about 200 geographical miles from the Red Sea, there is a fall of five feet per mile on the entire intervening space.*

The elevation of the bed of the Atbara, in the latitude of the plain country of Taka, has not yet been ascertained. But at Khartúm on the Nile, in $15^{\circ} 37'$ North latitude, nearly 150 geographical miles above the junction of the Atbara, the main stream has an absolute elevation of no more than 1188 feet ; so that, Kassela-el-Lus being in about the same latitude, the elevation of the point of bifurcation of the Khor-el-Gash may be safely assumed to be 1200 English feet, or perhaps a little more. Hence the fall to the Red Sea, on a distance of about 200 geographical miles, gives six feet per mile, down which (as the experience of the two French travellers already mentioned shows, in corroboration of the statement of Artemidorus) a portion of the waters finds and always has found its way to the Red Sea, and as the whole of them would do were but the outlet towards the Atbara at Fillik effectually closed. It is to be remarked that the fall of the Nile between Khartúm and Mekheirriff is only 106 feet, or about eight inches per geographical mile. This sufficiently establishes the fact of the general level character of the neighbouring country, and demonstrates the facility with which the course of the several rivers running through it might be diverted.

The consequences of turning the waters of the

* For the elevation and fall of the Nile throughout its known course see the calculations in pages 24-28 of the present work.

Atbara into the Khor-el-Gash and thence into the valley leading down towards the Red Sea, would be nearly as calamitous to Egypt as if the main stream of the Nile itself were diverted. The river Atbara, which is designated Bahr-el-Aswad or the Black River, on account of the quantity of black earth brought down by it during the rains, is, according to M. Linant, than whom no one is a more competent authority, "the branch which is the best source of irrigation, bringing with it most of the slime which manures the lands in Egypt." Were then the waters of the Nile deprived of their chief fertilizing ingredient, this alone would be serious enough. But it is further to be considered, that the basin of the Atbara may be estimated at upwards of 60,000 square geographical miles; and if the annual fall of rain there be taken at thirty inches, we have more than two million millions of cubic feet as the fall of water over this area.* What proportion of this immense quantity is conveyed by the Atbara into the Nile, and by the Nile down into Egypt, it may not be easy to calculate. Still, under any circumstances, the quantity must be considerable; so that the damming up of the former river might, as in the time of the Khalif Mustansir Billah, cause such a deficiency in the rise of the Nile as to prevent the fields of Egypt from being duly watered and sown; the result of which would be (as stated by the Emperor John Cantacuzene),

* These numbers must be taken as the most general first approximations. There are no data for anything more definite.

that "the whole of Egypt and Syria, whose subsistence depends on the river, would perish with hunger."

Thus it has been shown that, whatever may have been the opinion of geographers in the time of the Ptolemies and Cæsars, the TÁKKAZYE or "river" of Northern Abessinias was, from the fourth until the end of the eleventh century of the Christian era, if not later, known as the Nile or "river" of Egypt. And it would seem that the same opinion prevailed until, by the withdrawal of the Abessinians from the low countries and the occupation of those regions by the Turks, who thence extended their conquests up the valleys of the Nile and its principal tributaries, the TÁKKAZYE not only ceased to be regarded as the Nile, but had even to cede to the Goang (Gwangwe) the title of the upper course of the Astaboras or Atbara; whilst the Astapus or Blue River came to be regarded as the Nile, though with no greater claims, in a geographical point of view, than the Astaboras or TÁKKAZYE itself.

CHAPTER VI.

THE BLUE RIVER REGARDED AS THE NILE.

IN the preceding chapter it has been shown that, till the eleventh century of our era or even later, the Ták-kazyé was regarded as the upper course of the Nile by the Christians of Northern Abessinia. When, however, the plain country between the Atbara and the Bahr-el-Azrek passed into the occupation of the Mohammedan people who still possess it, the latter river came to be regarded as the "Nile" in the place of the former.

The head-streams of the Bahr-el-Azrek or Blue River were well known to the Portuguese, who, for more than a century after the death of Albuquerque, continued in relations more or less intimate with Abessinia, and especially with the southernmost provinces of that empire. It is a singular fact that the acquaintance with those head-streams in the early portion of the sixteenth century (as manifested in the "Asia" of De Barros, one of the best informed of the Portuguese writers), was more extensive and intimate than that of any other nation or individual from that time till the year 1842, when I visited the south-western extremity of Abessinia.

In his third decade De Barros states that, with respect to what his countrymen had learned concerning the territories of the Emperor of Ethiopia, the same lie between the streams of the rivers Nile, Astapus and Astaboras, which Ptolemy describes in his fourth table of Africa. These rivers (he says) the natives call Tacuy, Abavy, and Tagazy, of which they regard the central one as the largest, and for this reason they give it the name it bears, which signifies "the father of waters."

It might be objected that this description of the Portuguese historian bears signs of having been derived from the writings of the Greek geographer cited by him, rather than from any native information obtained by his countrymen in Abessinia. But this is not the case. True it is that De Barros and other Portuguese writers were led into error by following Ptolemy; though it was not from taking him as their authority and guide for the general course of the Nile and its principal tributaries, but from their attempts to adapt to that geographer's outline (which we now find to be a close approximation to the truth) the insufficient information obtained by their countrymen in Eastern Africa. But the Abessinians themselves were innocent of all acquaintance with the Greek geographer and his works, and consequently could not have been so misled. All that we require, is to have the ideas of the Abessinians themselves respecting their native rivers truly represented to us; and then, freeing them from the glosses of their Portuguese reporters, we can view and

judge them according to our own more enlarged acquaintance with African geography.

Now, the statement of De Barros just cited, is to the effect that the knowledge of the Abessinians was limited, but at the same time clearly extended, to three rivers; namely, the "Tagazy," the "Abavy" and the "Tacuy." Of these three rivers we know the first two to be the Tákkazye and the Abai. Consequently we have only to identify the third river, called by the natives "Tacuy," and declared by Barros to be "the Nile." That it was not the White River, the "Nilus" of Ptolemy, is unquestionable; for the Portuguese of those times, equally with their Abessinian informants, knew as little of that river as the Abessinians of the present day. Besides which, the minute details given by De Barros respecting the position of the Tacuy and its affluents, militate entirely against the idea of any such knowledge. For he expressly states that the Abessinians "had only heard of the Tacuy (his Nile), without making use of its waters, on account of the great mountains of Damot and Shinasha between them and that river. And hence they called the Abai the 'father of waters,' because they had never seen the (Tacuy) Nile." He explains further that "the three rivers which water Abessinia are not at their sources sufficiently large to irrigate the land of Egypt, but, are aided by the waters of other very considerable rivers. The most eastern one, named Tagazy, receives seven streams; the second one, named Abavy, eight; and the Tacuy four, which have their sources in the mountains of Damot, Bizamo and Shinasha,

independently of others which join it before it arrives thus far." From these clear and unequivocal indications, we may absolutely establish the identity of the Tacuy, or "Nile" of De Barros, with the Dedhesa or direct course of the Blue River ascended by M. Rusegger in 1838 ;* and the very lofty and remarkable mountains, which the latter traveller saw at the southernmost point of his journey, and which he describes as lying in a south-easterly direction on the right side of the Bahr-el-Azrek,—consequently to the south and on the *left* bank of the Abai,—must as clearly form part of the mountains of Damot, Bizamo and Shinasha, in which the Portuguese historian places some of the head-streams of his Nilo.

One word of explanation is necessary with respect to the Abessinian countries just enumerated. At the present day, the name of Damot is usually given to the south-western portion of the peninsula of Gódjam, and that of Shinasha to the valley of the Abai in the same direction. But it is an historical fact that those designations formerly belonged exclusively to portions of the country lying beyond the Abai to the south ; and that, like the names Djawi, Mietcha (Maitsha), Liban, Kambwat (Cambate) and others, now given to various districts within the peninsula, they were, in consequence of the invasion of the Gallas, carried northward across the river, either by the displaced inhabitants of those southern districts, or by some of the Galla tribes themselves, who followed in the steps of the refugees.

* See " Journ. Roy. Geogr. Soc.," vol. xvii., p. 11.

From the statements of De Barros, it is certain that the thought of identifying their Abai with the Nile had not at that time entered into the minds of the natives of Southern Abessinia; and as to the Portuguese, it is equally clear that they would never have fallen into the error of imagining the Tacuy of Abessinia to be the Nile, had they not engrafted the very precise local information obtained concerning the former river on their own general and necessarily vague notions of African geography; which, based on Ptolemy's tables, were afterwards developed by means of the information collected on both the East and West coasts of Africa. Of these general notions it is here necessary to say but little.

The historian already cited speaks of a great lake in the interior, of which accounts had been received both in Congo and Sofala, as sending forth three rivers; namely, the Tacuy or Nile, the Zaire or Congo, and the Zambese or Cuama. Later writers describe the Nile as flowing from two lakes; the information received being vague and uncertain, and giving rise to controversy, but being nevertheless substantially correct. A remarkable description of these two lakes is afforded by Pigafetta, in his "Relazione del Reame di Congo" on the authority of Odoardo (Duarte) Lopez, who visited the west coast of Africa near the end of the sixteenth century. He reports that "there are two lakes, but they are situated quite otherwise than as stated by Ptolemy; for he places his lakes east and west, whereas those which are now seen are situated north and south

of each other, in almost a direct line, and about 400 miles asunder. Some persons in those countries are of opinion that the Nile, after leaving the first lake, hides itself underground, but afterwards rises again. But Signor Odoardo states that the most veracious history of this fact, is that the Nile does not conceal itself underground; but that, as it runs without any settled course through frightful valleys and deserts uninhabited by man, it is said to descend into the bowels of the earth. The Nile truly has its origin in this first lake, which is in 12° South latitude; and it runs 400 miles due north, and enters another very large lake, which is called by the natives a sea, because it is 220 miles in extent, and it lies under the equator. Respecting this second lake, very positive information is given by the Anzichi near Congo, who trade to those parts, and who say that on the lake there are people in large ships, who can write, have numbers, weights and measures (which in those parts of Congo are not used), and build houses of stone and mortar; their customs being like those of the Portuguese.”*

Had the Portuguese but known the White River, as did the Greek geographer whom they followed and as we ourselves do, there would have been little to amend in their opinions with respect to the upper course of the Nile. But, having erroneously assumed the Tacuy of Abessinia to be the Nile, and having, on the other hand, been given to understand that the Nile originated in a

* *Op. cit.*, edit. 1591, p. 80.

certain lake or lakes beyond the equator ; it became necessary for them to carry the head of the Tacuy into the neighbourhood of the lake or lakes, and with it as a natural consequence the Abessinian provinces of Damot, Bizamo and Shinasha, in which some of the head-streams of the Tacuy were known to have their sources.

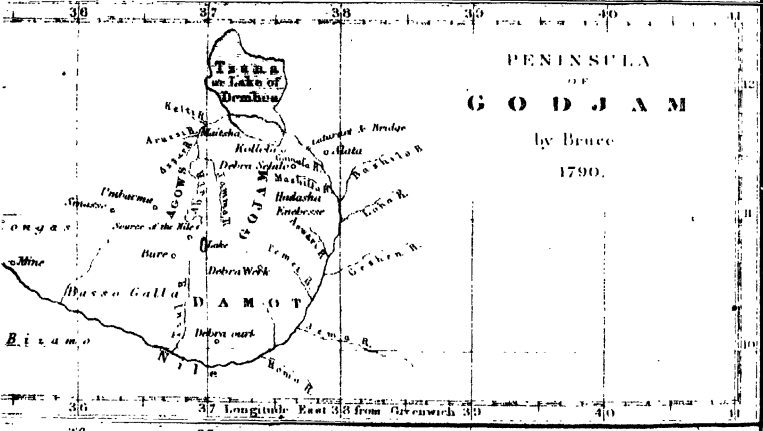
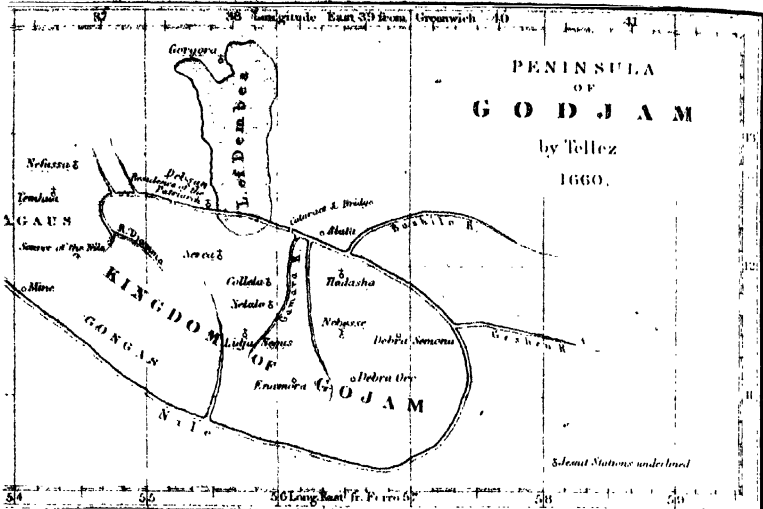
The error did not rest here. Lake Coloö or Tsana, from which the Astapus or Abai, the central stream of Abessinia, issues, was known to lie within the province of Gódjam, which province was in like manner known to border on Shinasha, Damot and Bizamo. And as these latter regions had been removed to the neighbourhood of the great southern lake or lakes, in company with the Tacuy or Nile, there was no alternative but to carry Gódjam, with lake Tsana and the head of the Abai, in like manner away to the south. The position on the equator attributed by Ptolemy to lake Coloö, was no doubt greatly instrumental in causing this error ; the result of which was that, in the maps of those times, the empire of Abessinia is made to cover a considerable portion of Central Africa.

Such were the opinions generally entertained respecting the Nile and its principal tributaries till the beginning of the seventeenth century, when the Jesuit Missionary, Peter Pæz, and his associates entered Abessinia. The field of their labours was chiefly the south-western portion of that country, where they at the same time did good service in the cause of science. For, by observing, though but roughly, the altitude of the pole, and by tracing the curve of the Abai round

the peninsula of Gódjam, they were enabled to correct the fundamental error in African geography, as far as concerns that river and Lake Tsana. Only, while they correctly showed that river and that lake to be the Astapus and Coloë of Ptolemy, and approximately determined their true positions, they were guilty of the inconsistency and absurdity of making the Abai to be, *at the same time*, the Nilus of that geographer. Whether they were led to this by the vanity of wishing to be thought the discoverers of the source of the Nile, or whether it arose from ignorance of the separate existence of the Tacuy, though known to their countryman De Barros half a century earlier, cannot well be determined. There is however one fact connected with the subject, which leads to the belief that the confusion between the two rivers may have been caused by some misconception, not so much on the part of the Missionaries in Abessinia themselves, as of those of their order in Europe who compiled the accounts of their travels. It is, that in the map of the upper course of the Abai in Father Balthazar Tellez's History of Upper Ethiopia,—“Figura de como o Nilo nasce e saye de Ethiopia,”—a small portion of the lower course of the Tacuy is shown as joining the Abbai on its left or western bank; and against this river is placed the name “Rio Tacaze,” instead of “Rio Tacuy.” This can only have been a clerical error, since the position of the Tákkazyë must have been known, then as now, to the veriest tyro in Abessinian geography. But its consequence naturally was that, in every map copied from that of Tellez

without reference to the original materials, the supposed error with respect to the "Rio Tacaze" was *amended* by placing that name in its proper place, so that the Tacuy as an independent river was lost sight of.

Seeing the little acquaintance with the interior of the African continent possessed by the nations of Europe during the seventeenth and eighteenth centuries, it is not surprising that the identification of the Abai with the head of the Nile should have met with general favour. The conclusive reasoning of the learned D'Anville, in his "Dissertation sur les Sources du Nil, pour prouver qu'on ne les a pas encore découvertes," published in 1759, ought however to have convinced the unprejudiced scholar that the Abai is only the Astapus of Ptolemy, and that the White River is that geographer's Nile. Nevertheless the prevailing error kept its ground; and when it is considered that, even at the present day, there are some (Mr. Cooley for instance) who continue to insist on the identity of the Abai with the Nile, it must be admitted that our countrymen Bruce had sufficient grounds for undertaking as he did, about ten years after the appearance of D'Anville's dissertation, his celebrated "Travels to discover the Source of the Nile." But, whatever may have been the traveller's conviction on the scientific question, it nowise justified his pretensions to be the first and only European who had visited that source. Still less can it excuse or extenuate his attempts to make the world believe (and this too by the unfairest means) that Paez, Lobo, and others, who before him



asserted they had been there, were "liars" and "impostors."

One of the means employed by Bruce to attain his end, was to falsify the chorography of the peninsula of Gódjám (as will be manifest on a comparison of the accompanying maps of the peninsula by Tellez, by Bruce, and by myself), whereby his conscientious commentator, Dr. Alexander Murray, was led to assert "that the stations of the Jesuits in Gódjám and Damot were chiefly in the east or in the middle of the peninsula, and that they had neither occasion nor protection to go often so far west as Sacala." But inasmuch as two of those stations, at Temhua and Nefassa, were not merely on the further side of that district in the extreme western portion of the peninsula, but in the immediate vicinity of the source itself (as is shown in Tellez's map and likewise in my own as regards Temhua, where I have been), it is clear that Dr. Murray's objection was made under an entirely erroneous impression. That several of the Jesuits, besides Paez, did actually visit the source of the Abai, is not now denied by the warmest partisan of their detractor. For myself, I am bound to declare, of my own personal knowledge, that their description of the locality is far more accurate than that given by Bruce in his published work, which latter differs materially from the true description contained in his notes written on the spot. The reason for this falsification, like that of the general chorography of the peninsula of Gódjám, is patent: it would have been inconsistent and self-damnatory on the traveller's part to

deny that Paez had visited the source of the Abai, and then, by his own confirmation of his predecessor's most accurate description, to prove that the description could only have been written by one who, as Tellez says of the other Jesuits that followed Paez, "had seen the spot with his own eyes."

As regards the claim of the Abai to be the head of the Nile, it has not, when properly considered, the slightest reasonable argument in its favour. The explicit statement of De Barros proves that, till the middle of the sixteenth century, the Abessinians not only did not recognize their native river as the Nile, but were even in ignorance of the existence of the Tacuy, which at that period was looked on as the Nile by the Portuguese in Eastern Africa, though solely because they in their turn were ignorant of the existence of the White River. And Jerome Lobo further bears testimony that, as late as the year 1613, the countries of Wambera and Fazokl, within the valley of the Blue River, continued utterly unknown to the Abessinians; for that, when in that year the army under Ras Sáhela Kristos penetrated for the first time into those regions, he and his soldiers, amazed at their vast extent, gave them the designation of the New World. In fact, the authority of the native Abessinians on such a subject is altogether valueless; seeing that, even at the present day, their knowledge of the main stream of the Nile is confined to an acquaintance with its lower course within Egypt, acquired by the few Christian pilgrims visiting that country and Jerusalem by the way of the

Red Sea, and the yet fewer Mohammedan traders who, after crossing that sea to visit their holy cities, may, by curiosity more than by the hope of gain, be induced to extend their peregrinations as far as the world-renowned Misr-el-Kahira.

That the ignorant and superstitious natives of Abessinia should without question have believed their European visitors and instructors, when they told them that their Abai was the Gihon of the Book of Genesis not less than the Nile of Egypt, is quite intelligible. Anything in favour of its superiority over all other rivers would have been gladly received and adopted, as is manifest from the fanciful interpretation given by them to the river's name,—“the father of waters;”—a derivation however which is very questionable. It is far more probable that the designation is not a title any more than a proper name, but rather an appellative signifying “river;” the word *Abai* or *Abbay* being of cognate origin with the *Wabi* or *Webbi* of the neighbouring Somalis. I have already directed attention to the similarity in name of the lake of Southern Abessinia, called *Zuwai*, with the *Ziwa* or “Lake” of Central Africa. It is not unlikely that both *Zuwai* and *Abai*, meaning *the lake* and *the river* $\chi\alpha\rho' \acute{\epsilon}\xi\omicron\chi\grave{\iota}\nu$, are relics of the language of the primeval inhabitants of Southern Abessinia.

Bruce's editor, Dr. Murray, asserts that all the inhabitants of the valley of the Blue River, from *Fazokl* to the junction with the White River, know the river of *Habesh*—that is to say the *Abai*—by the name of

Bahr-el-Azrek ; and on this he founds a plausible argument, to the effect that, as the latter river is regarded as the Nile in preference to the larger stream with which it unites, so must the Abai, as the upper course of the Bahr-el-Azrek, be regarded as the Nile. The force of this argument might be admitted, were it the fact that, in the estimation of the natives of the valley of the Bahr-el-Azrek, the Abai is the direct continuation of that river. But, on the contrary, as has been explained in a former chapter,* the direct upper course of the Blue River, along the left bank of which M. Russegger ascended as far as $10^{\circ} 16'$ North latitude, is the Dedhesa or Tacuy ; whilst the Abai is only known to the natives of the valley of the Blue River as the Hessen, a tributary joining the direct stream on the opposite bank, about twenty-four miles lower down than the extreme point reached by the German traveller. Consequently, whatever claims the Blue River may possess, on native authority, to be called the Nile, those claims must be transmitted to the Dedhesa ; just as the Guangue, and not the Tákkazyé, claims on the like authority to be the upper course of the Atbara.

The histories of the two principal rivers of Abessinia present a remarkable parallelism. Both were known to the geographers of ancient Egypt, and in each case it was, not the direct course, but the branch rendering the largest quantity of water, which by the eyes of science was looked on as the main stream ; the Tákkazyé or “river” of the Axumites being treated as the upper

* Page 12.

course of the Astaboras, and the Abai or "river" of the southern Abessinians as that of the Astapus. In the lapse of ages, each river in its turn came to be regarded as the upper course of the Nile of Egypt; the Tákkazye by the Axumites in common with the early Christians of Egypt; the Abai by the Amharans jointly with the Portuguese Jésuits. But in both cases this was only for a while; and now, through a complete reverse of fortune, and by an extraordinary coincidence, the connexion between the two larger rivers of the upper country and their respective lower courses is so completely lost sight of by the inhabitants of their valleys, that the Guangue has become the upper course of the Atbara, the Tákkazye being only known as a tributary under the name of Sittit; whilst, in like manner, the Abai, under the name of Hessén, is looked on merely as an affluent of the Dedhesa, which, as the direct stream of the Bahr-el-Azrek, is treated as the continuation of that river, and called by its name.

CHAPTER VII.

RECENT NILOTIC DISCOVERY.

THE separate existence of the White River has, in modern times, been known since the commencement of the eighteenth century, the "Hesse-Arôghe or Bahr-el-Abiad, c'est à dire Rivière Blanche," being borne on Delisle's *Carte d'Égypte, de Nubie et de l'Abessinie*, of which the date is 1707. Half a century later, d'Anville established the identity of this river with the Nile of Ptolemy, showing it to be of much larger size and greater length than the Bahr-el-Azrek or Blue River; and a few years subsequently Bruce, though strongly advocating the identity of this latter river with the Nile of the ancients, was compelled to admit its great inferiority to the Bahr-el-Abyad, which, he says, "preserves its stream always undiminished, because rising in latitudes where there are continual rains, it therefore suffers not the decrease the Bahr-el-Azrek [Nile, *in orig.*] does by the six months dry weather."*

* Travels (3rd edit.), vol. vi. p. 433. The much greater size and importance of the Bahr-el-Abyad are more fully acknowledged in Bruce's manuscript notes, printed after his death by Dr. Murray, in vol. vii., pp. 105-107.

The course of the Nile or White River above the junction of the Astapus or Blue River, was first explored in 1827 by M. Linant, who ascended the stream as far as El-Ais in $13^{\circ} 43'$ North latitude. A few years afterwards, Mohammed Ali Pasha, having in person ascended the Blue River as far as Fazokl, determined on having the White River explored to its very sources. Accordingly, between the years 1839 and 1842 three expeditions were fitted out, by which the great southern arm of the Nile was followed upwards into regions previously unknown to the civilized world.

The first of these expeditions ascended the White River to $6^{\circ} 30'$ North latitude, discovering on its passage the mouth of the Sobat, Lake No, and the Bahr-el-Ghazal; the second reached $4^{\circ} 42'$ North latitude and $31^{\circ} 33'$ longitude East of Greenwich, and the third went not quite so far. Of the second, which was the most important, the results have been made known by M. d'Arnaud, the scientific chief of the expedition, in a memoir published in the "Bulletin of the Geographical Society of Paris," for February 1843; and also in much greater detail by M. Ferdinand Werne, who accompanied it as a volunteer, in his "Expedition zur Entdeckung des Weissen Nil."

In his communication to the public, M. d'Arnaud stated that, at about thirty leagues beyond the furthest point reached by the second expedition, several branches united, of which the principal one came from beyond an extensive country called Berry, situate a fortnight's journey to the east of the mountains of Bellenia. In

the map accompanying his memoir this alleged branch of the Bahr-el-Abyad is named "Choa-Berry," and the "God-Jeb" is represented as coming from the country of Kaffa and joining the "Choa-Berry" on its left or eastern bank. A copy of this portion of M. d'Arnaud's map is given on the opposite page, for the convenience of reference.

The appearance of M. d'Arnaud's memoir and map, whilst legitimately exciting much general interest, and causing reasonable hopes that the sources of the Nile were at length in the way of being discovered, gave also occasion to an attempt to mystify the public after the fashion of George Psalmanazar.

M. Antoine d'Abbadie* happened to be in Abessinia when the results of the second Turco-Egyptian expedition up the Nile became known to the public. In Gódjam, like M. Blondeel van Cuelebrook, Belgian Consul-General in Egypt, and myself, who had preceded him there, M. d'Abbadie had collected various particulars respecting the Godjeb ; and seeing this river marked in M. d'Arnaud's map as the head of the Nile, and being struck with the coincidence of its upper course with that resulting from the information which he had obtained in Gódjam, he thought he might safely venture to

* Mr. Anthony Thomson d'Abbadie is a native of Ireland and a British subject; as he was known and avowed himself to be in 1839, when, in that character and on the recommendation of the Council of the Royal Geographical Society of London, he obtained from Viscount Palmerston a Foreign Office passport ; though since then he has become a Frenchman "by choice," and is now known as Monsieur Antoine d'Abbadie.

appropriate to himself the glory of a journey into Kaffa across the "Nile" without being at the trouble of actually undertaking it. Accordingly he announced to the public, both in France and in England, that in the month of December 1843 he had crossed the Nile within two days' journey or about thirty miles from its source, which he described as a small spring issuing from the foot of a large tree "of the sort that serves in Ethiopia for washing cotton cloths," and as being held sacred by the natives, who yearly offer up at it a solemn sacrifice. To the right and left of the source are two high hills, wooded to the summit, called Boshi and Doshi, in the country of Gimiro or Gamru, adjoining Kaffa;—the name Gimiro or Gamru being in his opinion the origin of the Djabal-el-Qamr, "whence arose the curious error of the Mountains of the Moon." The head of the Nile he declared to be in $7^{\circ} 25'$ North latitude, and $80'$ longitude West of Sakka, the capital of Enarea; and as he made the longitude of this town to be $34^{\circ} 18' 6''$ east (Paris), it resulted that the source of the Nile was in $32^{\circ} 58' 6''$ east.

Entertaining doubts respecting this journey, I was induced to investigate its particulars; and in the year 1850, I published "An Enquiry into M. Antoine d'Abbadie's Journey to Kaffa, to discover the Source of the Nile," wherein I unequivocally expressed my disbelief in its reality, and gave in detail the reasons for my disbelief.

After the lapse of nine years I have just heard of the publication at Leipzig, in July last (1859), of a work

under the title of “Résumé géo désique des positions déterminées en Ethiopie, par Antoine d’Abbadie,” professing to fix the places of 831 stations *between Massowah and Kaffa*; the extreme point recorded being however Mount Bora, *in Enarea*, in $7^{\circ} 50' 8''$ North latitude, and $34^{\circ} 39' 5''$ East longitude (Paris), where M. d’Abbadie now places the source of the Nile, alleged to have been discovered by him in January 1846! This is far removed, both in time and space, from the head of the Nile announced as having been discovered in December 1843, in the “Djabal-el-Qaur,” the two high hills called Boshi and Doshi,—ridiculously reminding one of the two sharp peaks called Crophi and Mophi, with which the priest at Sais tried to hoax Herodotus;—and on investigation and comparison of the present with his former recorded statements, M. d’Abbadie will be found to have afforded evidence to convince even the most sceptical of the correctness of my opinion of him and his journey across the Nile into the still unknown and undescribed country of Kaffa.

For several years before the publication of my “Enquiry,” M. d’Abbadie, who was aware of the exposure hanging over his head, used every means to ward it off, or to render its consequences fugatory. It is not surprising that in his attempts he should have managed to enlist on his side many persons who, by being unconsciously led to adopt his cause, thereby became my opponents. This was the case among scientific men in France, and particularly the members of the Geographical Society of Paris. It is not without

some hesitation that I allude to this disagreeable subject ; and I should have refrained from doing so, did I not believe that certain influences formerly prevailing no longer exist. Consequently I have the less difficulty in expressing my regret that so unworthy a subject should have occasioned the differences between myself and a scientific body that otherwise I have so much reason to esteem.

Returning to the consideration of M. d'Arnaud's map of 1842, it has to be remarked that the river therein marked as the "Choa-Berry," with its tributary the Godjeb, is now known to have been incorrectly laid down as forming the head of the main stream of the Bahr-el-Abyad. M. Brun-Rollet and other explorers of the basin of the Upper Nile have ascertained that the upper course of the Sobat, coming from the country of the negro tribes of Berry, is called Schol ; and in the last-named traveller's map, inserted in the "Bulletin" of 1854, the two names "Schol R." and "Berry T." are placed in juxtaposition, so as to suggest the probable origin of the name "Choa-Berry," which I, in common with others, erroneously adopted as that of a separate branch of the Bahr-el-Abyad. If, like the "Godjeb," the "Choa-Berry" of M. d'Arnaud's map was laid down on M. Blondeel's authority, the identification of it with the river Schol of Berry, which is now found to be the upper course of the Sobat, is conclusive as to the true course of its tributary the Godjeb ; on which point a discussion was going on in Europe, at the same time

that M. d'Abbadie was setting up that river's claim to be considered the head of the Nile.

The origin and nature of this other discussion require to be briefly related. As early as the beginning of the year 1841, I sent home from Shoa certain information, collected there by Dr. Krapf and myself, respecting this river Godjeb, which we both believed to flow southward, and to discharge its waters into the Indian Ocean. Several months later Major Harris arrived in Shoa, where he at once adopted our views respecting the Godjeb; and though, in the course of the following year, on my further journey alone into Gódjam, I obtained other and fuller information, which satisfied me that my former opinion was erroneous, and though I sent this amended information to England through Major Harris himself before his departure from Shoa, nevertheless on his arrival in England in 1843, he, in conjunction with Mr. James Macqueen, continued to advocate the identity of the Godjeb—or Goschop or Gochob, as they called it after Dr. Krapf's defective pronunciation,—with the Juba river of the coast).* And this they did so positively and so unqualifiedly as to induce Humboldt,† Ritter, Zimmermann, Keith-Johnstone, and other geographers to adopt their opinion.

* The probable identity of Godjeb with the Juba—*quasi* Go-juba—was suggested by Colonel Jackson, Secretary of the Royal Geographical Society, at the meeting of the Society on the 22nd November 1841, when my first communication respecting the river was read.

† See *Ansichten de Natur*, Bohn's Translation, p. 118.

Though it was no easy task to contend almost single-handed with such a host of "authorities," still I did so ; and this so successfully, that, after the publication in 1847 of my paper "On the Nile and its Tributaries," in which it is demonstrated that the Godjeb can only be one of the head-streams of the Sobat, there were few persons competent to form a judgment on the subject who did not concur in that opinion.

In the same paper were embodied my conclusions generally respecting the various head-streams of the Nile ; which conclusions, though modified in various particulars, remain substantially unaffected. In that paper, after enunciating my hypothesis respecting Ptolemy's sources of the Nile in the Mountains of the Moon, which is developed in the fourth chapter of the present work, and expressing the hope that the key to the *arcenum magnum* of geography had at length been found, I proceeded in the following terms :—"As it will thus result that the source of the Nile is situate at a comparatively short distance from the sea-coast within the dominions of the Imam of Maskat, the friend and ally of the principal maritime powers of the world, there cannot exist any obstacle of moment in the way of setting at rest this great geographical problem, which for thirty centuries has riveted the attention of the civilized world, at the same time that it has baffled the attempts to solve it made by the most celebrated rulers of Egypt, from the Pharaohs down to Mohammed Ali."*

* "Journal of Royal Geographical Society," vol. xvii., p. 76.

Within a year and a half after I had used these words, an opportunity presented itself, as I hoped, for testing the correctness of my opinions. Dr. Friedrich Bialloblotsky, a scholar well known in the literary world, having become acquainted with my views respecting the southernmost sources of the Nile, offered to undertake a journey in Eastern Africa with a view to their discovery, and proposed that I should assist him with the means. Though I hesitated to originate and so to take on myself the responsibility of such an expedition, yet I declared my readiness to assist the traveller, provided he, out of his own resources and on his own responsibility, proceeded on his journey as far as Alexandria. With this understanding he, in June 1848, left England for his native country, Hanover; and as soon as I heard of his having made arrangements for proceeding to Alexandria, I began to collect subscriptions, at first privately among a few personal friends and then publicly, the amount of which was remitted to him at Alexandria and Aden, in accordance with my engagement. The plan of the journey, as settled between us before his departure, is given in the appendix to the present work, together with copies of the communications made by me from time to time to the persons who kindly responded to my appeal on behalf of the undertaking, which unfortunately proved a failure, though in furtherance of it the traveller proceeded as far as Zanzibar.

Shortly after Dr. Bialloblotzky's departure, but before he could reach the East coast of Africa, intelligence was

received in England that the Church Missionaries stationed near Mombas had penetrated a considerable distance inland, and had there discovered the snow-capped Kilimandjaro. This discovery, important in so many respects, was made by Mr. Rebmann on the 11th May, 1848, but was not rendered public in England till the same month of the following year, when an account of it was printed in the "Church Missionary Intelligencer." Since then the repeated journeys into the interior, of Dr. Krapf, Mr. Rebmann and Mr. Erhardt, and the information collected by them respecting the more remote regions which they could not visit in person, have furnished us with the particulars respecting the south-eastern limits of the Basin of the Nile, which are incorporated in the second chapter of the present work.*

More recently, as has already been mentioned,† Captains Burton and Speke have proceeded from Zanzibar far into the interior of Africa, where they have discovered the two lakes known to Ptolemy and the Portuguese, but (as far as we are aware) never before visited by any one but the natives of Africa themselves.

It only remains to say a few words respecting the progress of discovery up the White River and its branches since the termination of the Turco-Egyptian expeditions. In the steps of the government explorers there soon followed European traders settled at Khartúm, Roman Catholic Missionaries, and others; who, if they did not each individually contribute something new to

* See p. 37.

† See p. 17.

the general stock of information, at least all aided in confirming and establishing the substantial correctness of the results previously arrived at. Among these pioneers of European civilization, the one pre-eminent is M. Brun-Rollet, by means of whose energetic and persevering explorations and inquiries we have been made acquainted with so many particulars of the upper course, not only of the White River, but likewise of the Sobat or Shol and other branches of the main stream. From him also it is that we have derived almost all the knowledge we possess of the great western arm of the Nile, respecting which we have still so much to learn.

CHAPTER VIII.

THE TRUE NILE AND ITS SOURCES.

THERE are two rules for determining which of the various head-streams of a river is entitled to be regarded as its upper course, and consequently to bear the name borne by the united stream lower down. The one rule is theoretical or natural, the other is practical or conventional. By the former the greater length and size and the general direction of the valley or basin of the river are the main considerations. By the latter it is the first acquaintance which the inhabitants or discoverers of the valley of the main stream may make with one of its branches (or the converse), that causes the name of the former to be carried over to the latter.

In the case of the great river of Africa it fortunately happens, that through the far greater portion of its course both rules are applicable; the direct and main stream having been the first known and first explored. Herodotus and all writers anterior to Ptolemy concur in describing the Nile as coming from the west,* and the first explorers on record, namely, Nero's two centurions,† passing by the mouths of the Astaboras or Atbara,

* See p. 41, *et seq.*

† See p. 58.

the Astapus or Abai, and the Astasobas or Sobat,—all three affluents of the Nile on its right or eastern bank,—penetrated up the main-stream, in a direction always tending towards the west, as far as the ninth parallel of north latitude the river there still coming from the west or south-west. Thus far, it is manifest, theory and practice went hand in hand.

From this point Claudius Ptolemy takes up the description of the river ; and since his time the sources of the Nile in the Mountains of the Moon, with their snows, lakes, and cannibals, have been prominent and established features of African geography.

The idea of those mountains seems indeed to be inseparable from that of the Nyam-nyam and other monsters with which fancy has peopled them. Shakspeare, of whose almost universal knowledge every day affords additional proof, makes the African Othello speak of—

“ Hills whose heads touch heaven,⁴
And of the cannibals that each other eat ;
The Anthropophagi, and men whose heads
Do grow beneath their shoulders ;”

whilst every traveller in Africa, who may* inquire after the sources of the Nile, is sure to be told, in almost the same breath, of the Mountains of the Moon and their ferocious inhabitants.

* The “ poet’s eye ” here saw Kilimandjaro, Kenia, and the other Mountains of the Moon, towering into the region of perpetual snow.

A striking instance of this inveterate complex idea is given in M. Werne's account of the second Turco-Egyptian expedition to discover the source of the Nile, already referred to. As the boats of the expedition rounded the point of Khartúm and slowly sailed into the White River, their crews heard the last shrill farewell cry of the women, many of whom with both hands swung their cloths backwards and forwards over their heads, as customary at funerals, thereby intimating their anticipation that their friends could never return, but would fall a prey to the men-eaters. "This," says M. Werne, "made most of our party laugh; especially my men, who flattered themselves they had just as good teeth as the Nyam-nyam, so much dreaded by many, and particularly by the well-fed Egyptians, but whose country no one is able to point out.*"

What M. Werne here says is quite true. The country of the Nyam-nyam and the Mountains of the Moon have no settled place in native African geography, no one appearing to have any idea of where they are to be looked for, except by ascending the Nile to its sources, wherever those sources may happen to be. Selim Bimbashi, the commander of the first expedition, was doubtful, on reaching Birket-el-Ghazal or Lake No, whether he should not proceed westward up the Bahr-el-Ghazal or Keilak, rather than turn southward up the Tubiri. But the imperative instructions of his master were that he should explore the Nile *to its southernmost sources*; so that he felt himself precluded

* *Op. cit.*, p. 72.

from ascending the former branch, though it appeared to him the larger and more direct continuation of the main stream in that portion of its course upwards, which is from east to west, and not from north to south. Had he proceeded up the western arm instead of the southern, he and his people would have still gone on looking for the Mountains of the Moon, with their dreaded inhabitants, without meeting with them in that direction more than in the other.

It is well, however, that Selim and his companions did turn up the Tubiri, because practice has thereby again gone hand in hand with theory. For at the point at which, nearly eighteen hundred years previously, the exploration of the Nile had been abandoned by Nero's centurions, it was resumed by those of Mohammed Ali, who penetrated so far to the south as to establish the almost literal accuracy of the description of the Upper Nile given by the great geographer of Alexandria; which has now been corroborated by the discovery of the lakes Nyanza and Tanganyika, whence Ptolemy derived his two arms of the Nile.

Whether these two lakes do actually join the Nile, as asserted by that geographer, is a question requiring investigation. Captain Speke, when addressing the Royal Geographical Society on his return to England, in May last (1859),* expressed the opinion that "Lake Nyanza is the great reservoir of the Nile." That it is so towards the south-east may be admitted, as also that it

* See "Proceedings" of the Society, vol. iii., p. 212.

is Ptolemy's eastern lake. But it remains to be ascertained whether there are not other similar reservoirs further westward in the interior of the continent. Indeed, we know already of Lake Tanganyika, in a position sufficiently corresponding to that of Ptolemy's western lake; only its elevation of merely 1800 feet seems to militate against its connexion with the Nile, especially as it is said to be encircled and shut in at its northern extremity by a range of mountains. Still, it is not absolutely certain that Tanganyika has no outlet through or round those mountains; and besides, as the elevation of the Nile at Khartúm is only 1200 feet, whilst from about 10° North latitude the main stream and its principal arms are on almost a dead level, we should be wrong in asserting the physical impossibility of a connexion between the lake and the river.

The 15th volume of the "Journal of the Royal Geographical Society"* contains an interesting account, communicated by Mr. Macqueen, of the "Visit of Lief ben Saied to the Great African Lake." The traveller's road from the coast near Zanzibar was up the valley of the Kingani as far as the Zohgomero [Zungomero], thence crossing into the valley of the Matoney [Ruaba], and so by Jangwera • [Uniangwira], to the river Magrazic [Malagarazi] and the lake; "the whole time from the shore of Africa being 140 days, or four and a-half months on the road, during which time (he says) we travelled sixty-two days, at about the rate of nine or

* Pp. 371-374.

ten miles daily ; but I have no means of ascertaining the exact distance.”* Tanganyika itself is thus described :—“Standing on the banks of the lake, it can be seen across, in the same manner as from Zanzibar to the main (which is twenty-four English miles). Several islands were observable in it. . . . There is a great sea or swell on the lake when the wind blows fresh ; and *it is well known by all the people there that the river which goes through Egypt takes its source and origin from the lake.*”†

This would be a most important fact, could the correctness of the statement be relied on. But unfortunately Lief asserts at the same time, “that the river called Magrazie [Malagarazi], *takes its origin from the lake*, and disembogues itself into the sea between the rivers Lindy and Keelwa ;” adding, that he is “sure that the rivers Lindy and Masogre [Lufidji ?] are branches from it ;”‡ and as the Malagarazi river is described by Captains Burton and Speke, from their own personal knowledge, as flowing *into*, and not out of the lake, we have not merely a direct contradiction of Lief’s assertion in this particular, but might not un-

* The time and rate recorded give a mean of 589 miles. The route travelled is evident the one coloured *blue* in Captain Speke’s map (in *Blackwood’s Magazine* for September, 1859), as far as Uniangwira. Beyond that place it would seem to have continued westward to the lake, instead of returning northward to Kazeh. Captain Speke says :—“Our line of march [was] about *six hundred* rectilinear geographical miles,” which is strikingly confirmatory of Lief ben Saïed’s estimated distance.—*27th Dec.*, 1859.

† Page 373.

‡ *Ibid.*

reasonably be led to reject his testimony altogether. Yet his statements respecting Tanganyika and the route thither are substantiated by the travellers just named; and if we only take into consideration the sense in which the natives of Africa and other uneducated persons are to be understood, when speaking of a river as flowing into or out of a lake or as joining another river, we shall find Lief's statement to be not so contrary to the truth as, according to our notions, it appears to be.

Whatever meaning Europeans may attach to the assertion, that "the river which goes through Egypt takes its source and origin from the lake," it is not necessarily more, in the native phraseology of Africa, than the enunciation of the fact that some of the sources of the Nile are at the water-parting between the basin of this river and that of the streams draining into Tanganyika; the contiguity* of their respective sources being, according to the native mode of thinking, equivalent to an actual water-communication between the streams themselves. To some persons such a perversion of ideas may hardly seem possible. I will therefore give an example from my own personal experience.

* This example was adduced several years ago in my "Observations sur la Communication supposée entre le Niger et le Nil," (printed in *Nouvelles Annales des Voyages*, 5^me sér. 1849, tom. ii., pp. 186-191), for the purpose of explaining a statement made by a Fellatah pilgrim, named Abd-el-Rahman, to M. Fulgence Fresnel, from which the latter inferred the existence of a water-communication between the Atlantic Ocean and the Mediterranean, by another "Canal des deux Mers," of which Nature had been at the expense.

In August, 1842, when at the town of Yaush in Gódjam, I obtained much valuable information respecting the countries lying east of the Abai and north of Shoa, from an intelligent Christian Abessinian merchant named Fanta, who traded between the market of Baso in Gódjam and those of Warrahémano and Warrakallu in Eastern Abessinia. On my inquiring of Fanta as to the course of the Milli and Berkona, two affluents of the Hawash,* he answered, that he knew them well and that they joined the Abai. As I was well aware this was not the case, I began to fear that the whole of Fanta's information might be of a similar character. But a little explanation showed me that he was quite right—that is to say, right according to his own way of thinking and speaking. On my expressing myself doubtingly as to the correctness of his assertion, he appealed to myself as an eye-witness of the fact. “Do you not say (asked he,) that you came to Shoa by the way of the Adal country?” I admitted it. “Consequently you crossed the Hawash, into which river the Milli and Berkona flow.” This, too, I could not deny. “The Hawash, after passing between Adal and Shoa, runs round to the south of the latter country, between it and Gurágie. Does it not?” As I now began to conceive Fanta's meaning, I did not think it worth while to dispute the correctness of this assertion; though I knew the fact to be that the course of the river in question is *from* and not *to* the south. “Well, then, the Hawash joins the Múger, the confluence of which

* See p. 22.

river with the Abai you have seen with your own eyes, if I mistake not." This last was true enough. And thus the good man Fanta, by merely making the Hawash run the wrong way, and regarding the Múger as a continuation of it, because the two rivers have some of their sources in close contiguity on Mount Salála, succeeded in demonstrating, to his own satisfaction, if not entirely to mine, that the Milli joins the Abai! The alleged communication between Tanganyika and the Nile may consequently be understood in a similar manner; the sources of the rivers flowing into the former and those of some of the head-streams of the latter being at the water-parting between their respective basins, and thus "communicating with one another," according to ordinary African phraseology.*

From what has preceded, it is manifest that Ptolemy was fully warranted in making the two newly discovered lakes to be the heads of his two arms of the Nile; Nyanza being so in fact, and Tanganyika, if not in fact,

* Captain Speke reports (*Blackwood's Magazine* for September, 1859, vol. lxxxvi., p. 352), the following remarkable statement made by Sheikh Hamed, a respectable Arab merchant:—"A large river, called Marungu, supplies the lake at its southern extremity; but, except that and the Malagarazi river on the eastern shore, none of any considerable size pour their waters into the lake. But on a visit to the northern end I saw one, which was very much larger than either of these, and which I am certain flowed out of the lake; for, although I did not venture on it I went so near its outlet that I could see and feel the outward drift of the water." The truth of this clear and explicit statement is denied by Captain Speke.—27th December, 1859.

at least according to native African notions and phraseology. These two arms have now to be identified.

Captain Speke takes for granted that Nyanza is the head of the Tubiri, which river was ascended by the Turco-Egyptian expeditions, and is yet better known through the numerous Europeans of various nations and callings, who have visited its banks as high as the fourth parallel of north latitude. To my mind, however, the direct communication between the two is problematical. If Nyanza be really the head of the Tubiri, it is strange that the European residents at Gondógoro and its vicinity should not have heard of that great expanse of water, in a locality where, on the testimony of trustworthy natives who have visited the upper regions, they place the mountains of Komberat and the more distant country of the Fandongos. Further, Dr. Kotschy (as I am informed) states,* that at Gondógoro, during the rainy season, the Tubiri frequently rises and falls again suddenly in the course of a single day—a phenomenon which is characteristic of a mountain-stream fed directly by the rains, rather than of the conduit from a “reservoir” like Nyanza, of which the drainage-basin must be of immense extent.

There is another reason which would be conclusive, were we only sure of its being well founded. The observations for longitude, made by the late Dr. Knoblecher along the course of the Tubiri, show that river to have

* “Umriss aus den Uferländern des Weissen Nil,” (Mittheil. der K. K. Geogr. Gesellsch. zu Wien, ii. 1.)

been laid down by Selim Bimbashi and M. d'Arnaud full three degrees in error towards the east.* Assuming this to be really the case, it is perfectly intelligible why Nyanza should not have been heard of at Gondókoro, inasmuch as the upper course of the Tubiri is thereby carried away westward from the meridian of Nianza to that of Tanganyika, whilst the mountains of Komberat and the Fandongos become identical with those encircling the eastern end of the latter lake. On the other hand, Nyanza, by being thus relatively shifted three degrees to the east of the Upper Tubiri, is thereby removed to the head of the basin of the Sobat or Shol; or, to speak more correctly, the latter river accompanies the Tubiri so far westward as to be placed on about the same meridian as Nyanza.

On the 15th August, 1848, I read, before the Section of Geology and Physical Geography of the British Association for the Advancement of Science, at the meeting at Swansea, a paper "On the Sources of the Nile in the Mountains of the Moon."† in which I identified the Sobat and the Tubiri with Ptolemy's two arms of the Nile. The reasons for this identification were in accordance with the then existing state of our acquaintance with the regions of the Upper Nile. With our present increased knowledge, and subject to the

See, to this effect, Petermann's Geogr. Mittheil., 1859, (Part IX, Sept.), p. 393, and the Map there.—27th Dec., 1859.

† Printed in the "Edinburgh New Philos. Journ.," No. xc., for October, 1848, vol. xlv., p. 221-251.

modifications caused thereby, I am inclined to retain my opinion of former years.

The Sobat, or Shol, (which is indisputably M. Russegger's Bahr-el-Abyad,* and probably the Astasobas, or Nile of Eratosthenes†), is a very large river, said to contribute to the main stream nearly half its waters. Its upper course not having, like that of the Tubiri, been frequented by Europeans, our acquaintance with it is necessarily imperfect. But assuming it, for the reasons and in the manner just stated, to be shifted westwards into the place of the Upper Tubiri or thereabouts, the arguments in favour of a communication between Nyanza and the Nile will have, in like manner, to be transferred from the one river to the other. No further change would seem requisite, and Nyanza would still remain Ptolemy's eastern lake.

As regards the Tubiri and Ptolemy's western lake, it has to be remarked that as the river at Gondókoro is 2000 feet above the ocean, whilst the elevation of Tanganyika is no more than 1800 feet, a water communication between the two is not to be thought of. Nevertheless, after the explanation just given, there is nothing to prevent this lake from being, in the opinion of the natives, the head of the river; and therefore Ptolemy could not be blamed for so regarding it on testimony like that of Lief ben Saïed.‡

* See page 14.

† See page 42.

‡ The evidence of Sheikh Hamed is even more precise and positive than that of Lief.—27th December, 1859.

It is scarcely necessary to explain that should Dr. Knoblecher's longitude of the Upper Tubiri prove to be erroneous, one of the strongest arguments against the connexion of that river with Nyanza would fall to the ground. Under any circumstances, however, it would be premature to express a decided opinion on a subject with respect to which we stand in need of so much further information.

In a preceding chapter* it has been shown that the Bahr-el-Ghazal or Keilak has branches from the south, together with others from the west and north-west. From what we know of the limits of the basin of the Nile in those directions there is, however, scarcely room to expect that any river of greater size than the Sobat or the Tubiri will be found to the west of the latter; still the question cannot at all be looked on as settled. There are reports of a great lake said to be situate in the west of the Fandongo country, which lake M. Brun-Rollet lays down conjecturally on the equator and between the twenty-third and twenty-fourth meridians east of Paris. If Nyanza be the head of the Tubiri, Tanganyika might perhaps be made to correspond with M. Brun-Rollet's western lake. But if the Tubiri, with the Komberat and Fandongo mountains, should have to be carried westward to about the meridian of Tanganyika, we must look for a *third* lake, the position of which would be relatively about as much to the north-west of Tanganyika as Nyanza is to the north-east; and it really seems that such a lake would answer far better than

Nyanza to Lopez's description of the *second* lake of the Nile, cited in page 110 of the present work.

It is, however, of little avail to reason on insufficient data. This alone is certain,—that *all* the head-streams of the Nile must be thoroughly explored before it would be in our power to finally and irrevocably to decide which among them is entitled to the designation of *the Source* of the Nile. Till then we must remain content to own, with the poet—

“ Arcanum natura caput non prodidit ulli,
Nec licuit populis parvum te, Nile, videre.”

APPENDIX.

DR. BIALLOBLOTZKY'S PROJECTED JOURNEY TO DISCOVER THE SOURCES OF THE NILE.

I.

PLAN OF JOURNEY AS SETTLED WITH DR. BEKE IN JUNE, 1848.

PROCEED from Egypt to Aden, and thence to Mombás on the East Coast of Africa, in about 4° of South latitude. At Mombás, or in its vicinity, make arrangements for travelling into the interior with a native caravan or otherwise. It is anticipated that a journey of about 300 or 400 miles from the coast, in a direction between west and north-west, will bring the traveller to the edge of the table-land of Eastern Africa, at the water-parting between the basin of the Upper Nile and those of the rivers Lufídji, Ozi (Pokomóni or Maro) and Sabáki, flowing eastwards into the Indian Ocean. On reaching the table-land, determine the southern limits of the basin of the Nile, or that extensive tract of Africa which drains towards Egypt; and visit, if possible, the sources of the principal streams which unite to form that river. Obtain information respecting the great lake, said to exist in the interior near the parallel in which the traveller will then be. Having explored

the head-streams of the Nile, proceed further westwards across the continent should facilities present themselves for so doing; if not, trace the course of the river downwards to Sennar and Egypt. Notice any branches joining the main stream, and ascertain, as far as practicable, their length and direction. Note the bearings and distances of the journey; observe the latitude; make meteorological observations; and determine the elevation of the land by means of both the thermometrical and the aneroid barometer; which instruments, together with a sextant and artificial horizon, azimuth compass, hygrometer, and others, are furnished for use. Record carefully all observations made. Describe the nature of the countries traversed, with their productions and capabilities for cultivation, commerce and colonization; also the character, manners, and customs of the inhabitants, and their fitness for instruction or for emigration. Ascertain the state of slavery and the slave trade, both on the coast and in the interior. Collect vocabularies of the languages, and other materials for their investigation; and make all other suitable observations and inquiries. Transmit full reports to Dr. Beke at every opportunity.

II.

4th January, 1849.

Letters having been received from Dr. Bialloblotzky, dated Aden, the 11th December, 1848, announcing his approaching departure for Mombás, it is conceived that the time has arrived when an account should be rendered by Dr. Beke of his receipts and expenditure in connexion with Dr. Bialloblotzky's intended exploratory journey into Eastern Africa. Dr. Beke has therefore the pleasure of submitting to the sub-

scribers to this undertaking the accompanying statement, from which it appears that he has received £182 4s., and expended £185 12s. 1d., leaving a balance of £3 8s. 1d. in his favour; in addition to which he has made himself responsible for £70, in case Dr. Bialloblotzky should stand in need of that further sum at Aden or Mombás. In rendering this account, Dr. Beke has to express his thanks to the friends who, at his solicitation, have so kindly contributed to the important enterprise on which Dr. Bialloblotzky is engaged.

III.

26th May, 1849.

It is my unpleasant duty to announce that Dr. Bialloblotzky has been compelled to relinquish his intended exploratory journey into Eastern Africa. When that traveller left England in June, 1848, it was arranged that he should proceed to the Church Missionary Station at Rabbai-Empia, near Mombás on the east coast of Africa, in about 4° South latitude. From this point it was anticipated that, through the kind offices of the missionaries there, he would be able to penetrate into the country of the friendly Wakambas; with whom (as stated in the *Church Missionary Intelligencer* of the present month, p. 12) "our missionaries are in continual communication, and who carry on a commercial intercourse between the sea-coast and the main body of their own tribe, which lies from 400 to 600 miles distant in the interior." The repeated exploratory journeys to a considerable distance inland, recently made by the Rev. Mr. Rebmann, have shown (to use that missionary's words in the *Church Missionary Record* of February last, p. 32) that "the character of the people is free from that savageness,

which would render it unadvisable for one or two individuals only to reside in their country." The only danger or difficulty to which it was contemplated that Dr. Bialloblotzky might be exposed, was in passing through the tribes occupying the coast districts, from some of whom M. Maizan, a French traveller, lately met his death; but it was considered that the friendly assistance of his countrymen, the missionaries, would obviate all apprehension on this score. In February last Dr. Bialloblotzky arrived at Zanzibar on his way to Mombás, taking with him letters of recommendation from Captain Haines, I. N., the Political Agent at Aden, to Captain Hamerton, Her Majesty's Consul at Zanzibar and the East India Company's Resident with the Imaum of Muscat. This officer received the traveller very hospitably and kindly, but raised the strongest objections to his journey, and refused to aid him in its prosecution. The Rev. Dr. Krapf, to whom I gave Dr. Bialloblotzky a recommendation, and who came over from Rabbai-Empia to Zanzibar to see him, also declined assisting him, and even objected (as likewise did Captain Hamerton) to his accompanying him as far only as the Missionary Station. This withholding of assistance on the part of individuals possessing, from their position, such authority and influence, being virtually a prohibition of Dr. Bialloblotzky's further progress, he felt himself under the necessity of abandoning his undertaking and of returning to Aden, from which place he addressed a letter to me on the 1st instant. Dr. Bialloblotzky states that Captain Hamerton promised to write to me and to send a copy of his letter to the Government at home; so that his motives might be clearly understood. Dr. Krapf also promised to communicate with me in reply to my letter to him. As yet I have not heard from either. Grieved and disappointed as I feel at this frustration of my endeavours in the cause of African discovery—feelings which I fear will be shared by those who have kindly co-

operated in providing the funds for a journey which has proved so unsuccessful—it is some consolation to know that the Church Missionaries are actively engaged in exploring the interior of Eastern Africa ; and from their exertions we may expect to see, ere long, the solution of the great geographical problem, which it was hoped that Dr. Bialloblotzky would have had the good fortune to accomplish.

IV.

11th January, 1850.

On the 4th January, 1849, I laid before the subscribers to Dr. Bialloblotzky's projected exploratory journey into Eastern Africa a statement of receipt and expenditure to the 31st December, 1848. On the 26th May following, it became my duty to announce that the traveller had returned from Zanzibar to Aden on his way to Egypt. The undertaking on behalf of which I had exerted myself being thus prematurely brought to an end, I felt myself bound to decline receiving any further subscriptions on account of it. A few friends, who had offered to subscribe, have however since been solicited by me to join in defraying the expense of Dr. Bialloblotzky's journey home from Egypt, where he now is ; and the sums contributed by them, added to the small balance which I still had on hand for the purposes of his expedition, but which I venture to appropriate to this new object, have enabled me to place £25 at his disposal, for the specific purpose of providing him with the means of returning to Europe. A general and final statement of the sums received, and of their appropriation, is now submitted to the subscribers. The friends

who have so generously responded to my appeal in the cause of African discovery, will doubtless be gratified in learning that the labours of the Church Missionaries stationed at Rabbai-Empia, near Mombás, seem likely to result in the realization of the views as to the geography of Eastern Africa which were enunciated by me in the year 1846, and which Dr. Bialloblotzky's expedition was intended to verify. Already has the Rev. Mr. Rebmann, in his several exploratory journeys, discovered, in about $3^{\circ} 40'$ South latitude, and 36° East longitude, a lofty mountain, named Kilmandjaro, whose summit is covered with perpetual snow, and obtained information respecting a region further in the interior, called Uniamési, or "*the country of the Moon*;" and he has further ascertained the existence, in Uniamési, of a large lake, which is *not* (as has been supposed) identical with *Nyássi* or "*the Sea*"—the great lake of Southern Africa, commonly known as Lake Marávi—but from its name, Usámbiro, is apparently the Lake Zambre of the Portuguese of the sixteenth and seventeenth centuries.

On the other hand, the Egyptian expeditions for exploring the Upper Nile have ascended the river as far as the fourth parallel of north latitude, where they have found is to be still a very large stream, about 2000 feet in breadth during the rains; and as the country of Uniamési (or Mono-Moézi) may be approximatively placed in 2° to 4° South latitude and 29° to 34° East longitude, the head of the Nile would, by its course being extended only 300 or 400 miles beyond the extreme point reached by the Egyptian expeditions, be brought near, if not into, this country of Uniamési. Should it really be the case that the Nile rises in the snow-capped Kilimandjaro or other similar mountains, in the vicinity of the lake in "*the country of the Moon*," the fact would be almost literally in accordance with the assertions made 1700 years

ago by the geographer Claudius Ptolemy of Alexandria, that the sources of the Nile are in the Mountains of the Moon, and that the lakes of that river receive the snows of those mountains. According to the latest intelligence received from the missionaries, Mr. Rebmann had set out on the 5th April last for Uniamési and the lake there; so that we may confidently anticipate the speedy solution of the great problem of geography—*Nili querere caput.*

SUBSCRIPTIONS RECEIVED.

HIS ROYAL HIGHNESS PRINCE ALBERT	£10	0	0
Sir Thomas Dyke Acland, Bart, M.P.....	20	0	0
W. Francis Ainsworth, Esq.	1	1	0
D. T. Ansted, Esq.	1	1	0
John Arrowsmith, Esq.....	1	1	0
Arthur Ashpitel, Esq.	2	2	0
H. J. L. Augarde, Esq.	1	1	0
John Ball, Esq.....	1	1	0
Admiral Sir Francis Beaufort	5	0	0
Rev. Dr. Beecham.....	1	1	0
Dr. Beke	10	0	0
Ditto Instruments	20	0	0
Ditto, to complete £25 remitted to Alex- andria, January, 1850	0	6	4
William Bennett, Esq.....	5	0	0
John Betts, Esq.	1	1	0
Ditto (Second subscription).....	0	10	6
Samuel Birch, Esq.	1	1	0
W. H. Black, Esq.	1	1	0
Beriah Botfield, Esq.	5	0	0
E. W. Brayley, jun., Esq.	1	1	0
The Chevalier Buusen	2	0	0
Sir Edward N. Buxton, Bart., M.P.	20	0	0
W. G. Carter, Esq.	2	2	0
Philip J. Chabot, Esq.	1	1	0
William Chambers, Esq.	1	1	0

C. W. Dilke, Esq.....	£1	1	0
C. W. Dilke, jun., Esq.....	1	1	0
The Earl of Ellesmere	5	0	0
Rev. Josiah Forshall.....	1	1	0
James Glaisher, Esq.....	1	1	0
F. H. N. Glossop, Esq.	1	1	0
Nathaniel Gould, Esq.	1	1	0
‡ Philip Griffith, Esq.	1	1	0
Sir John Guest, Bart, M.P.....	5	0	0
Miss Gurney.....	5	0	0
Samuel Gurney, Esq.	10	0	0
Samuel Gurney, jun., Esq.	1	1	0
J. D. Hailes, Esq.....	1	1	0
Rev. Dr. Harris	2	0	0
T. B. Hart, Esq.	1	1	0
William Heseltn, Esq.	1	1	0
Dr. Hodgkin.....	3	0	0
John Hogg, Esq.	1	1	0
Sir Robert H. Inglis, Bart, M.P.	1	1	0
John Winter Jones, Esq.	1	1	0
Charles König, Esq.....	1	1	0
Colonel Sir Henry M. Lawrence	5	0	0
The Literary Gazette	1	1	0
Dr. Lee.....	1	1	0
Ditto (Second subscription)	1	1	0
The Bishop of Llandaff.....	2	2	0
George Lowe, Esq.	1	1	0
Sir Edmund Lyons, Bart.....	2	2	0
Joseph Maitland, Esq.	1	1	0
Ditto (Second subscription)...	1	1	0

* The subscriptions thus marked were obtained by the traveller himself in the course of his journey, but are inserted here to complete the list.

R. H. Major, Esq.	£1	1	0
Admiral Sir Charles Malcolm	1	1	0
Dr. Charles Meyer	1	1	0
J. S. Mill, Esq.	1	1	0
T. J. Miller, Esq.	1	1	0
Sir Roderick I. Murchison	2	0	0
F. G. P. Neison, Esq.	1	1	0
The Marquis of Northampton	5	0	0
Richard Paterson, Esq.	2	0	0
Louis Hayes Petit, Esq.	2	2	0
Samuel P. Pratt, Esq.	3	0	0
Rev. G. C. Renouard	1	1	0
Ditto (Second subscription) ...	5	0	0
Ditto (Annual)	1	0	0
Colonel Sabine	1	0	0
The Bishop of St. David's	2	2	0
Mr. Alderman Salomons	5	5	0
W. D. Saull, Esq.	1	1	0
Sir Robert H. Schomburgk	1	1	0
Daniel Sharpe, Esq.	1	1	0
Samuel Sharpe, Esq.	1	1	0
E. Osborne Smith, Esq.	1	1	0
George Smith, Esq.	1	1	0
William Spence, Esq.	1	1	0
Colonel Sykes	2	0	0
David Taylor, Esq.	1	1	0
Richard Taylor, Esq.	2	2	0
The Master of the Temple	1	1	0
W. A. Thomas, Esq.	2	2	0
L. Thompson, Esq.	1	1	0
William Tite, Esq.	5	5	0
Rev. J. M. Traherne	2	0	0
Frederick Tuckett, Esq.	1	1	0
J. S. Venn, Esq.,	1	1	0

Messrs. J. and C. Walker	£1	1	0
Captain Washington R.N.	5	0	0
Messrs. Webster and Son.....	2	0	0
The Dean of Westminster	1	1	0
Charles Wilson, Esq.	1	1	0
James Yates, Esq.....	2	0	0

The Court of Directors of the East India Company likewise patronised the undertaking, by granting to Dr. Bialloblotzky, at Dr. Beke's request, a free passage from Suez to Aden in one of the Company's steamers.

GENERAL STATEMENT OF RECEIPT AND EXPENDITURE.

• RECEIPT.

From Subscribers as per Subscription List—
 1848 £182 4 0
 1849-50 67 13 10

 249 17 10

EXPENDITURE.

	£	s.	d.	£	s.	d.
Subscriptions received by Dr. Bialloblotzky at Athens	3	3	0	3	3	0
Ditto ditto in Egypt	5	0	0	5	0	0
Cash remitted to him at Alexandria in 1848 ..	30	0	0	30	0	0
Ditto ditto at Aden ditto	70	0	0	70	0	0
Ditto ditto at Alexandria in 1850	25	0	0	25	0	0
				133	3	0
Cost of Instruments furnished to Dr. Bialloblotzky in England	20	0	0	20	0	0
Cost of Instruments, Watch, Clothes, and necessaries sent to him at Alexandria	43	8	10	43	8	10
Ditto ditto at Aden	3	4	6	3	4	6
Ditto ditto, omitted to be charged in the Accounts rendered to Dec. 31st, 1848 ..	1	3	6	1	3	6
Freight	67	16	10	67	16	10
Postage and Petty Disbursements in 1848	2	15	0	2	15	0
Ditto ditto 1849-50	4	12	3	4	12	3
Advertisements, 1848	3	0	0	3	0	0
Ditto 1849	22	10	6	22	10	6
Printing, 1848	6	6	0	6	6	0
Ditto 1849-50	5	19	6	5	19	6
				12	5	6
				249	17	10

£249 17 10

