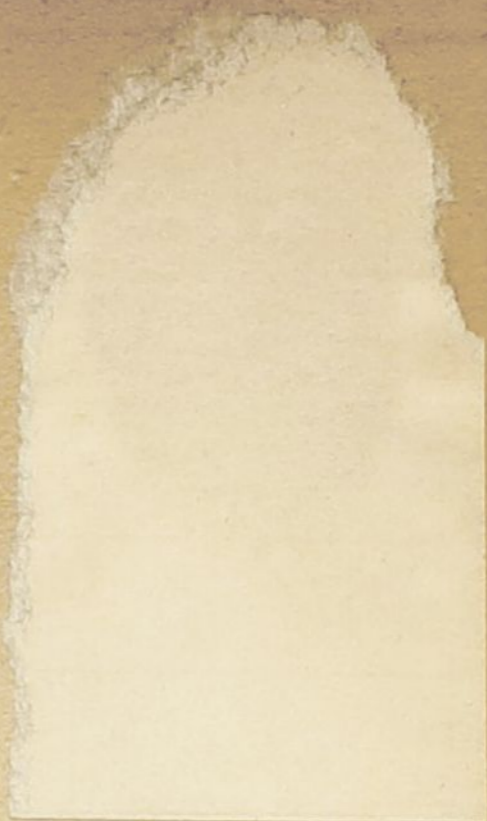
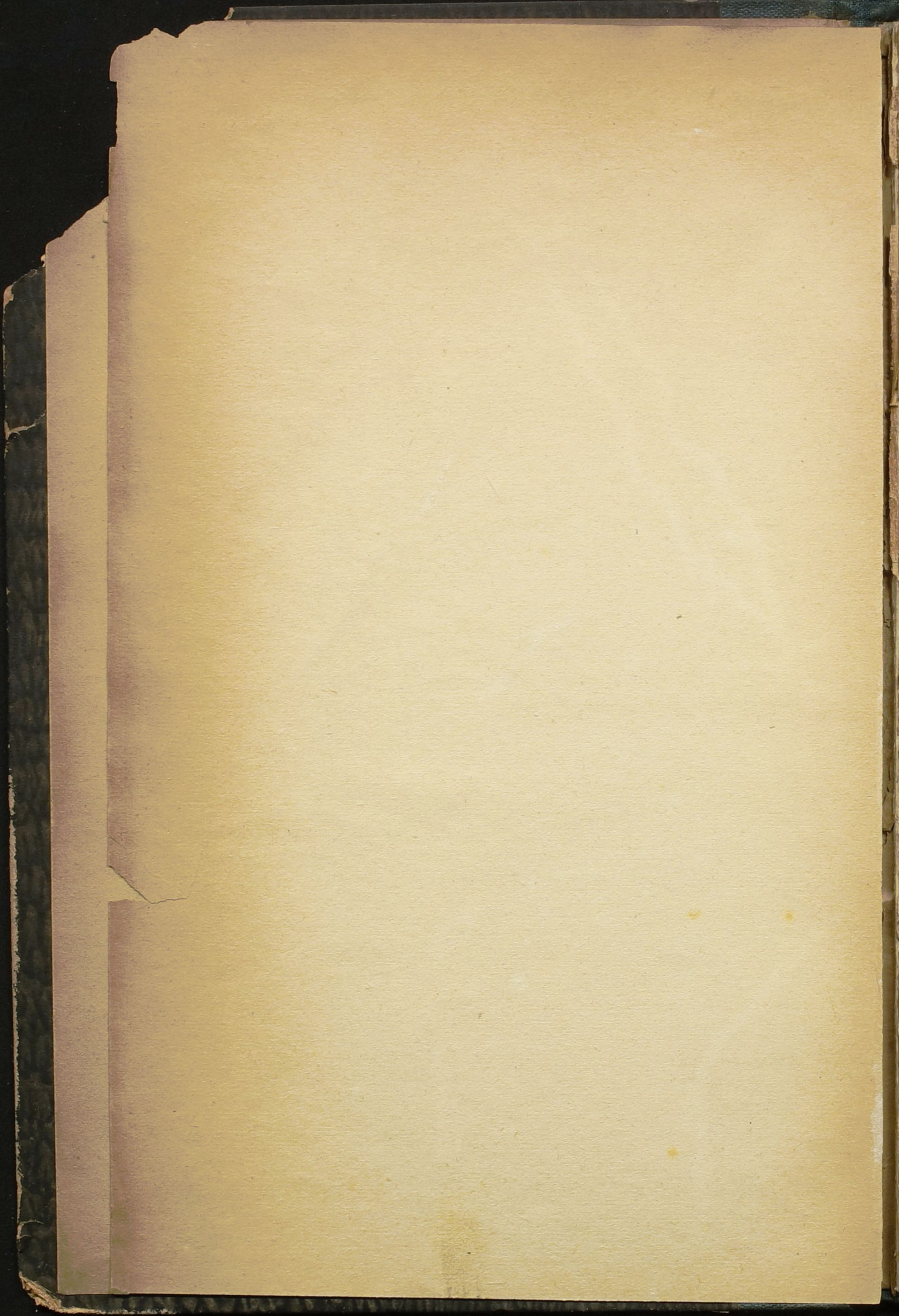
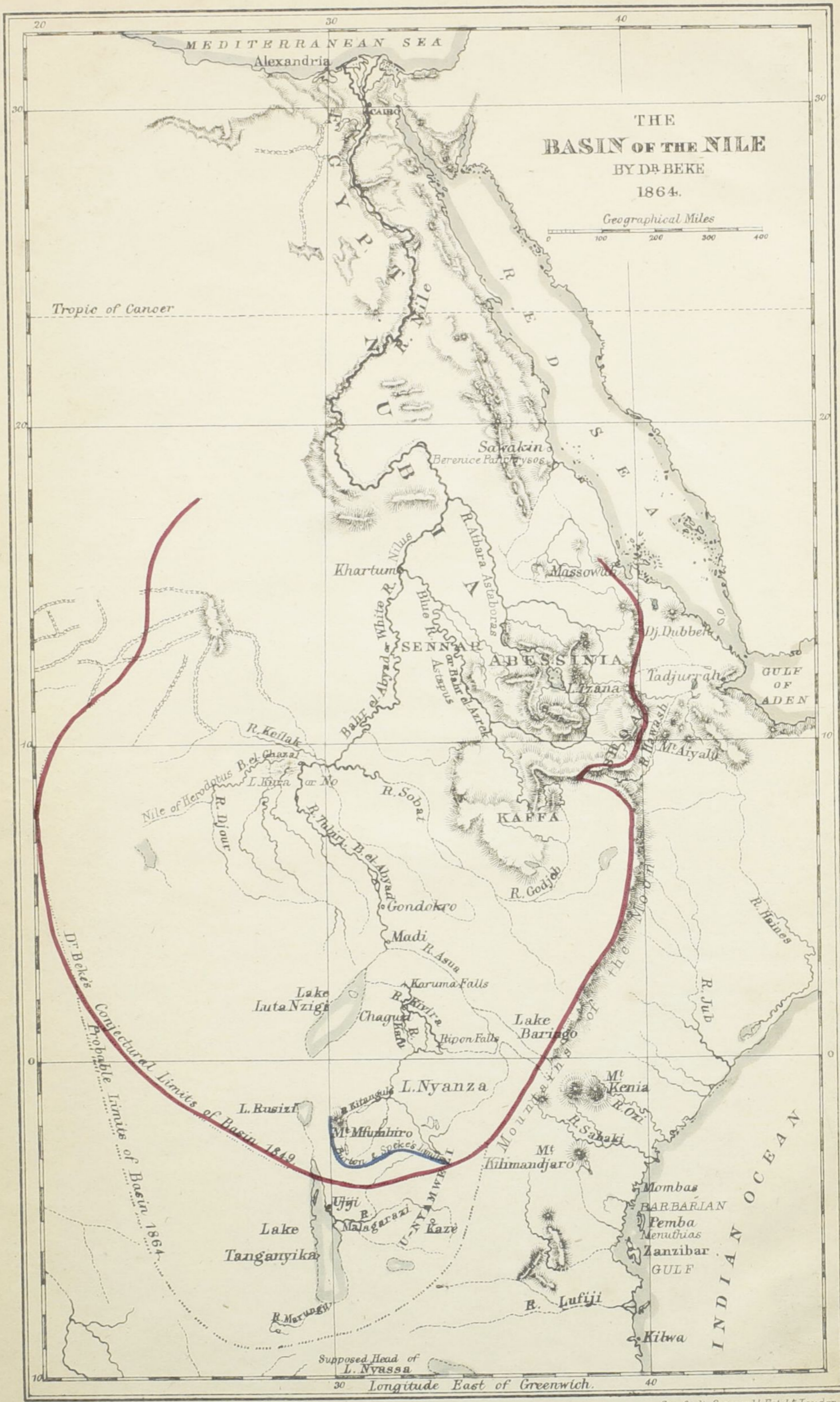


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*The German Oriental Society
From the author*

A LECTURE
ON
THE SOURCES OF THE NILE,

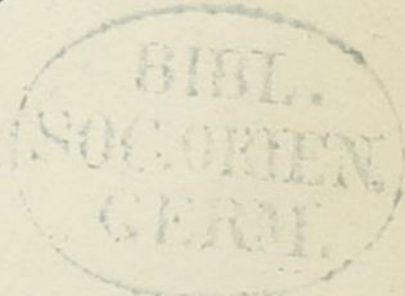
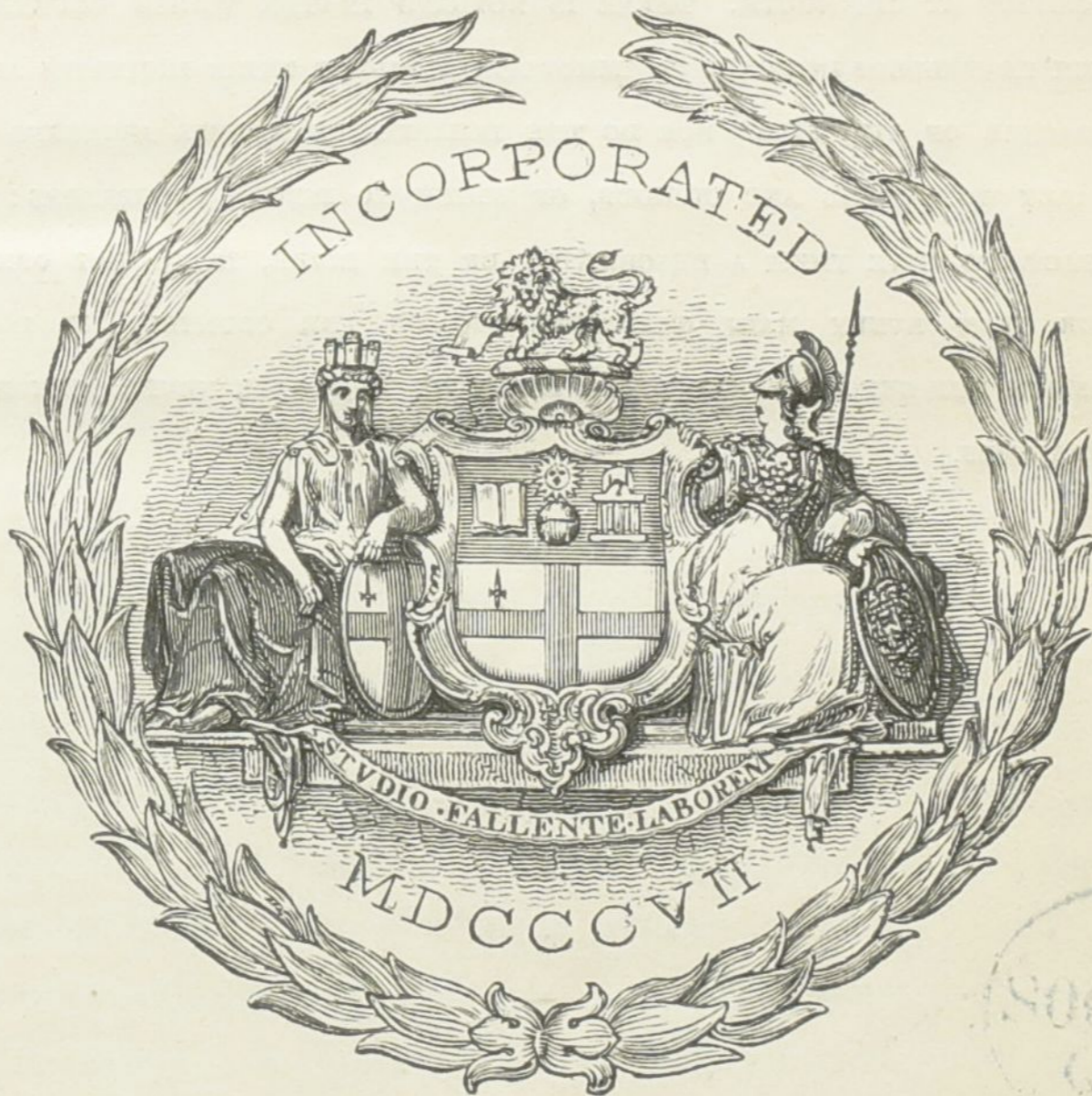
AND ON
The Means Requisite for their Final Determination.

DELIVERED IN THE THEATRE OF THE LONDON INSTITUTION,

ON
WEDNESDAY, JANUARY 20TH, 1864,

BY
CHARLES T. BEKE, Esq., PHIL. D., F.S.A.,

MANAGER, LONDON INSTITUTION.



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THE BEST KNOWN PECULIARITIES OF A COUNTRY ARE THOSE WHICH HAVE SOMETHING OF THE NATURE OF A PARADOX, AND ARE LIKELY TO ARREST GENERAL ATTENTION. OF THIS KIND ARE THE RISING OF THE NILE AND THE ALLUVIAL DEPOSITION 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. IT IS THE QUESTION PUT BEFORE EVERY OTHER BY THOSE WHO HAVE NEVER SEEN EGYPT THEMSELVES.

STRABO.

95.

A LECTURE
ON
THE SOURCES OF THE NILE.

IN the endeavour to promote the interests of the important establishment entrusted to their care, the Committee of Management of The London Institution are always gratified if, in addition to the ordinary routine of their duties, they can take the place of the lecturers engaged by them to instruct or entertain the proprietors and their friends, at meetings like the present, when it is usual to bring before them some subject of special and popular interest.

In availing myself of the opportunity now afforded me of addressing you, I may be allowed to refer to some of my colleagues, who have delivered Lectures within this Theatre at the *Soirées* of the proprietors. Your Honorary Secretary, Mr. Tite, in the long period during which, to the great advantage of the Institution, he has held office, has addressed you on several occasions on Egyptian antiquities and other topics of equal interest; Mr. Gassiot, one of your Vice-Presidents, has delivered from this place a discourse on Voltaic-Electricity, a department of Experimental-Physics peculiarly his own; and Mr. Smee has given several *Soirée* Lectures on some of those branches of science to which he has devoted so much attention.

In following these examples, it is to me a matter of special duty, not less than of gratification, to perform the task I have now

undertaken; because in doing so I am only rendering back to the proprietors of this Institution a portion of the instruction which, in past years, I have derived from this noble establishment. It was, in fact, in the Library of The London Institution that my early studies were chiefly prosecuted; and it is to its precious collection in every branch of science and literature that, while in England, I have never ceased to have recourse.

The subject to which I propose to call your attention on the present occasion,* is the solution of that great geographical problem which has occupied the attention of the learned world from the earliest period down to the latest moment. The Discovery of the Sources of the Nile, as it was the first, so it is now the last question remaining undecided, to enable us to say we are acquainted with all the material portions of the surface of the planet which we inhabit.

The announcement made a few months ago, that this great problem had at length been solved by Captains Speke and Grant, was hailed with the greatest gratification, and eagerly accepted; and by no one more readily than myself, on account of the results said to have been accomplished being so entirely in accordance with the views I have long entertained. Unfortunately, those results have not realized the expectations so sanguinely entertained. Without intending in the slightest degree to lessen the importance of the labours of the gallant and adventurous travellers; whilst estimating at their highest value the additions made to our knowledge of the countries of Eastern Intertropical Africa explored by them, and the hardships and dangers to which they have been exposed in penetrating into and through regions never before visited by any European; I am nevertheless bound to declare that, in the journey from which they have lately returned, Captains Speke and Grant have failed to solve the problem, which in ages past had become proverbial, *Nili quærere caput*.

Before proceeding to consider what those travellers really have accomplished, it is requisite that I should first briefly describe the

* This Lecture has since been delivered before The Philosophical and Literary Society of Leeds, on February 16th, and The Church of England Young Men's Literary Association for the City of Canterbury, on March 7th, 1864.



Nile and its principal tributaries, and then lay before you a summary of the knowledge of the Upper Nile previously possessed, or believed to be possessed, by geographers. In doing so, I must, however, confine myself within the limits of the last quarter of a century. To attempt to give even the faintest outline of the labours of the ancient Egyptians, Greeks, and Romans, the Arabians of the middle ages, and the Portuguese of the last few centuries, would extend far beyond the time allotted to the present discourse.

The Nile is in every sense an extraordinary river. 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 other river in the world, is a single stream. Fed by the copious rains of the tropics, collected by its innumerable head-streams and its immense lakes in 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 600 geographical miles above the point just indicated, or in all full 2,000 miles from its mouths, the river receives no affluent whatever on its left or western bank. On its eastern side, however, within the same limits, it receives three large tributaries: the Atbara or Bahr-el-Aswad (Black River), the Bahr-el-Azrek (Blue River), and the Sobat or Telfi; all having their origin in the elevated table-land of Abessinia.

The last of these three rivers has become known only recently, and therefore it has not at present to be further alluded to. The other two, with which we have been acquainted from an early period, require a brief notice.

The Atbara (*Astaboras* of Ptolemy) is called 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 main stream; in the same way as we see the turbid Arve discolour the limpid waters of the Rhone, after its exit from the Lake of Geneva. This

branch of the Nile is most important, because it contributes the largest portion of the slime which manures and fertilizes the land of Egypt. It is not less important, perhaps, for the reason that, by means of "a branch of the river Astaboras,"* its waters with their fertilizing mud might be directed from the Nile, and poured down into the Red Sea near Sawákin; in which case "the whole of Egypt and Syria, whose subsistence depends on that river, would perish with hunger." Such are the words of a Greek writer of the fifteenth century.† At the present day, we may add that such a calamity would prove scarcely less fatal to *our* manufacturers, by depriving them of the timely supply of cotton which they have begun to receive from Egypt.

The Bahr-el-Azrek or Blue River (*Astapus* of Ptolemy), known in Abessinia as the Abai, is that affluent of the Nile with which we are best acquainted, from the fact of its having been supposed to be the main stream, first by the Portuguese missionaries in Abessinia, in the beginning of the seventeenth century, and after them by our countryman, Bruce. Recent researches have, however, proved this supposition to be unfounded; for the Abai is now known to be a mere tributary of the Nile, as Ptolemy laid it down, and as D'Anville so ably argued a century ago.‡ As regards Bruce's pretensions to have discovered the source of this river, I am enabled to assert, from my own personal investigations on the spot, that both the river and its source were visited and accurately described by Paez, Lobo, and their companions,§ a century and a half before Bruce undertook his journey;|| and that his own description of what

* Artemidorus, in Strabo, Book XVI., c. iv., § 8.

† The Emperor John Cantacuzene, *Histor. lib. iv., c. 15.* Various other authorities, to the same effect, are cited by me in "The Sources of the Nile," pp. 90—105. In the "Calendar of State Papers, Colonial Series—East India, China, and Japan, 1513—1616, &c. Edited by W. Noel Sainsbury, Esq.," 1862, is a letter from the King of Portugal to the Pope, involving a project to divert the Nile from the country of the Soldan of Egypt. The present ruler of Abessinia, King Theodore, threatens to carry out this project, as a means of subjugating the actual Viceroy of Egypt, Ismail Pasha.

‡ "Dissertation sur les Sources du Nil, pour prouver qu'on ne les a point encore découvertes," in "Mémoires de l'Académie Royale des Inscriptions et Belles Lettres" (1759), Tome XXVI., pp. 46—63.

§ See Kircher, "Œdipus Ægyptiacus," Syntagma I., cap. vii., p. 57, *et seq.*; Tellez, "Historia de Ethiopia a Alta," p. 314; Le Grand, "Voyage en Abissinie," p. 210.

|| "Travels to Discover the Source of the Nile" (1790), Vol. III., p. 632, *et seq.*

he called the source of "the Nile" is unhappily only calculated to mislead.*

The main stream or true Nile (*Nilus* of Ptolemy), known as the Bahr-el-Abyad or White River, was a quarter of a century ago wholly unknown above the junction of the Blue River, near Khartum, with the exception of a small portion of its course, which had been explored by Monsieur Linant in 1827.† It was, however, generally supposed by geographers to have its sources in a range of mountains crossing the continent of Africa from east to west in about the eighth parallel of north latitude, to which range was attributed the name of *Jebel-el-Kamar*, or the "Mountains of the Moon."

Such being the condition of our knowledge of the Upper Nile a quarter of a century ago, I will now briefly state the progress of discovery since that period.

Between the years 1839 and 1842, three expeditions were fitted out by the late Mohammed Ali, Pasha of Egypt, and dispatched from Khartum, with the object of exploring the Nile to its uttermost sources.‡ Without dwelling upon any details of these expeditions, it will be sufficient to state that they ascended the river into vast regions previously unknown to the civilized world. In the ninth parallel of north latitude they reached and passed through the immense lakes or marshes at which, eighteen centuries before them, the two centurions of the Emperor Nero had turned back;§ and, after discovering three large streams flowing through extensive plains, where they had been taught to look for the river's sources in a range of mountains, they ascended the middle one of those three streams, and succeeded in penetrating southward to within five

* See my "Mémoire Justificatif en Réhabilitation des Pères Pierre Paez et Jérôme Lobo," in the "Bulletin de la Société de Géographie" (1848), Third Series, Vol. IX., p. 145, *et seq.*

† "Journal of The Royal Geographical Society," Vol. II., p. 185.

‡ See "Bulletin de la Société de Géographie," Second Series, Vol. XVIII., p. 367, *seq.*; Vol. XIX., p. 89, *seq.*; and p. 445. Werne, "Reise zur Entdeckung der Quellen des Weissen Nil," *passim.*

§ Seneca, "Quæst. Natur." lib. vi., c. 3. Here is evidently the lake Kura of the Arabian geographers, which they made to receive Ptolemy's two arms of the Nile rising in the Mountains of the Moon, as pointed out by D'Anville in his "Dissertation" already referred to. See also "Journal of The Royal Geographical Society," Vol. XVII., p. 67, *note*; and "The Sources of the Nile," pp. 59, 60.

degrees of the Equator ; and though nothing positive was determined, on any of these expeditions, with respect to the position of the Sources of the Nile or the Mountains of the Moon, it clearly resulted that both of these had been entirely misplaced by geographers.

The road thus opened by the Government of Egypt was soon followed by numerous European and Egyptian traders, and likewise by Christian Missionaries, through whose instrumentality the Bahr el Abyad or White River has been traced upwards about a degree further south ; whilst the two large side-streams, known as the Sobat (already alluded to) and Bahr-el-Ghazal, have been partially explored, together with numerous ramifications of all three rivers, to which it would be impossible to refer more particularly on the present occasion.*

The point most deserving of being brought to your notice, with reference to this exploration of the Nile, is, that during the three years in which the three expeditions of Mohammed Ali Pasha took place, the course of the White River was explored through upwards of ten degrees, or 600 miles of latitude, being at the rate of three degrees and a third, or 200 miles, per annum ; whereas, during the twenty-one years that have elapsed since the date of the last of those expeditions, the advance made southward has been through no more than about one degree of latitude, or at the rate of three miles per annum. Whether, then, we consider the amount of knowledge gained of the upper course of the great river of Egypt, or the rapidity with which that knowledge was acquired, the founder of the reigning dynasty of Egypt must be acknowledged to have far surpassed his predecessors, the Pharaohs, the Ptolemies, and the Cæsars, and has therefore to be placed in the foremost rank of Nilotic discoverers.

Having given this hasty and necessarily imperfect account of the progress of discovery from the north, I have next to direct your attention to what has been done within the last quarter of a century with a view to the determination of the sources of the Nile from the south. In doing so, I am unavoidably compelled to refer at some length to my own labours.

* See "The Sources of the Nile," pp. 129, 130.

In 1840 I undertook a journey into Abessinia, in Eastern Africa, one of the most ancient, most renowned, most remarkable, and yet least known of kingdoms; from which I returned towards the end of 1843.* On my way both to and from that country, I crossed the eastern edge of the high table-land of Eastern Africa, at points about seven degrees of latitude, or more than 400 miles, distant from each other; and in the year 1842, I explored, in company with the Rev. Dr. Krapf, a distance of nearly one degree of latitude along the edge of the table-land; on which occasion I determined the water-parting, in that direction, between the Pacific and Atlantic Oceans; the rivers which rise there falling on the one side towards the Indian Ocean, and on the other side into the Nile.†

Generalizing from my own investigations of the Abessinian table-land, combined with the knowledge of the upper course of the Nile acquired by the Egyptian expeditions, and the scanty notions which we then possessed of the regions in the south of Abessinia, I inferred that the eastern side of the basin of the Nile consists of an extensive table-land, of which the seaward edge runs from north to south, at a general elevation of seven or eight thousand feet, and presents therefore towards the sea-coast the appearance of a lofty range of mountains. And I compared this table-land of Eastern Africa, in the most general way, to those of the Indian Peninsula and 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, whilst its western counter-slope falls more gradually towards the interior of the continent and the valley of the Nile. Another point of difference is, that the rivers which rise near the western edge of the Ghauts and

* See "Journal of The Royal Geographical Society," Vol. XII., pp. 84—102, 215—258; Vol. XIV., pp. cxv—cxviii, 1—76.

† See "Journal of The Royal Geographical Society," Vol. XII., p. 99.

‡ In a paper read before The Royal Geographical Society on February 22nd, Mr. Gifford Palgrave speaks of "a line of mountains analogous to the Western Ghauts, but apparently as high as Lebanon, running down the Arabian Sea from Ras Mussendom to below Muscat," on the eastern side of the peninsula of Arabia. See the *Times* of February 25th, 1864.



of the Andes take their courses eastwards over the counter-slopes, and continue to the ocean at right angles (or nearly so) with the water-parting; whereas the streams which have their sources at the water-parting of Eastern Africa, flow in a general north-westerly direction, and fall in a succession of rapids or cataracts into the Nile; which latter river skirts the length of the western counter-slope, appearing in its upper course to be almost stagnant, except during the floods, and to form in the dry season a succession of swamps and lakes, rather than the channel of a running stream.*

Such being the main features of the Nile and of the high table-land forming the eastern side of its basin, I may now proceed to explain my theory with respect to the Sources of the Nile in the Mountains of the Moon.

The Mountains of the Moon are an established feature of African geography. All writers, whether Arabian or European, mention them; all travellers in Central Africa hear of them; and yet so indefinite, so various, so contradictory, are the statements respecting these mountains, that no satisfactory conclusion has been arrived at as to their magnitude, extent, or even their locality. It may, however, be confidently asserted, that all that has been written and said on the subject of these mountains, and of their containing the sources of the Nile, is founded on the statements of the celebrated astronomer and mathematician, Claudius Ptolemy of Pelusium, who flourished in the second century of the Christian era.

In opposition to this opinion, it is asserted by Captain Speke, in page 264 of his recently-published "Journal," that "all our previous information concerning the hydrography of these regions, as well as the Mountains of the Moon, originated with the ancient Hindus, who told it to the priests of the Nile; and that all those busy Egyptian geographers, who disseminated their knowledge with a view to be famous for their long-sightedness, in solving the deep-seated mystery which enshrouded the source of their holy river, were so many hypothetical humbugs."

* See "Report of The British Association for the Advancement of Science," for 1846; Transactions of the Sections, pp. 70—72; "Report" for 1861, Transactions of the Sections, pp. 184—185; "Journal of The Royal Geographical Society," Vol. XVII., p. 80.



Such an opinion, expressed in such language, respecting the geographers of the world-renowned school of Alexandria, which produced Euclid, Eratosthenes, Archimedes, and Hipparchus, would be undeserving of even a passing notice, were it not that Captain Speke has adduced as his authority what he styles "a most interesting paper, with a map attached to it, about the Nile and the Mountains of the Moon," which he says "was written by Lieutenant Wilford, from the Purans of the ancient Hindus."* It is a source of astonishment, and at the same time of regret, that the statements contained in this paper of Lieutenant Wilford should have been so blindly accepted; for their entirely apocryphal character is matter of history: the author, who was a learned, industrious, and conscientious man, having himself, only a few years afterwards, acknowledged and explained how he had been duped by his Brahmin pundit.† Public attention having, however, already been directed to this subject,‡ it is unnecessary to dwell on it here.

Far different from the opinion so inconsiderately expressed by Captain Speke of the great Egyptian geographer, was that entertained by El Masudi, the earliest and most eminent of the Arabian historians. This writer, who flourished about the middle of the tenth century of our era (A.H. 330), in his celebrated work, "Meadows of Gold and Mines of Gems," reverentially speaks of Ptolemy as "The Philosopher,"—by which title indeed he was generally known in the middle-ages,—saying, "The Philosopher (الفيلسوف), in his book entitled *Jighrafia* (جغرافيا, Γεωγραφία, *Geography*), gives an account of the world, its towns, mountains, seas, islands, rivers, and wells;"§ and after quoting largely from the work, he makes this most important declaration:—"I saw in the *Jighrafia* a

* *Op. cit.*, p. 13. See "Asiatic Researches," Vol. III. (1792), p. 295, *et seq.*

† "Asiatic Researches," Vol. VIII. (1805), p. 245, *et seq.*

‡ See the "Athenæum" of January 9th and 30th, 1864. I may mention, for the information of those who may desire to become acquainted with the particulars of this curious literary fabrication, that the "Penny Cyclopædia," as also the Biographical Division of the "English Cyclopædia," contains, under the head "Wilford," a succinct statement of the whole matter, with references to the original documents. See likewise the "Westminster Review" (New Series), Vol. XXV., p. 323.—April 4th, 1864.

§ See Sprenger's "Masudi," Vol. I., p. 201.



drawing of the Nile, as it comes forth from the *Jebel-el-Kamar* (جبل القمر), rising from twelve sources.”*

The map thus identified by the Arabian historian more than nine centuries ago, is one of those accompanying Ptolemy's "Geography," in which work they are declared to have been drawn by Agathodæmon of Alexandria, who is generally regarded as the contemporary of the geographer, and as having drawn the maps under his direction.† Be this as it may, the fact that the map is described by Masudi as forming a portion of Ptolemy's *Jighrafia*, seen by him in the tenth century, is the best voucher for the authenticity of this map, and also of a corresponding passage in the body of that work, which, though found in all the manuscripts extant, has been alleged to be an interpolation of the thirteenth or fourteenth century;‡ and it likewise conclusively proves the Arabic name *Jebel-el-Kamar* to have been derived from the Greek, as I have always argued, though the later Arabian geographers, who knew nothing of Greek, sought to make it significant in their own language.§

The passage in question occurs after the author's description of the Barbarian Gulf, on the east coast of Africa, in which is situate the island of Menuthias (generally identified with Zanzibar), and it is to the following effect:—"Round this gulf dwell the man-eating Ethiopians, from the west of whom extend the Mountains of the Moon, from which the lakes of the Nile receive the snows."||

* See Sprenger's "Masudi," Vol. I., p. 232; and "The Sources of the Nile," p. 75.

† A fac-simile of this map, as drawn by Gerard Mercator for the Amsterdam edition of Ptolemy's work, 1618, is reproduced at the end of this lecture. In the various manuscript copies of Agathodæmon's map, the streams flowing from the Mountains of the Moon into the lakes of the Nile are differently represented. In the one copied by Mercator they appear to have been six (3 and 3) in number; in others I have found eight (4 and 4), and eleven (5 and 6); that seen by Masudi had twelve; and in the Burney MS., No. 111 (press 163 *i*) in The British Museum, they are represented by an indefinite number of rough scratches with the pen.

‡ See Cooley, "Claudius Ptolemy and the Nile," p. 91.

§ See "The Sources of the Nile," pp. 72—76; "Journal of The Royal Geographical Society," Vol. XVII., pp. 51—53. The contrary opinion was favoured by De Sacy, in his "Relation de l'Égypte, par Abd-Allatif," p. 7, *et seq.*

|| Τοῦτον μὲν οὖν τὸν κόλπον περιουκῶσιν Αἰθίοπες ἀνθρωποφάγοι, ὧν ἀπὸ δυσμῶν διήκει τὸ τῆς Σελήνης ὄρος, ἀφ' οὗ ὑποδέχονται τὰς χιόνας αἱ τοῦ Νείλου λίμναι—*Claudii Ptolemai Geographiæ*, Lib. IV., cap. ix., § 5.

From the account given by Ptolemy of his sources of information (which it is not necessary to particularize here),* it is manifest that the statement just cited, and the map constructed in accordance with it, were chiefly based on the reports of persons who had visited the east coast of Africa, and there obtained information respecting the interior, much in the same way as the Portuguese did in the fifteenth and following centuries, and as other Europeans have done within the last few years; and in constructing his map from such indefinite information, the geographer fell into the error with respect to the position and direction of the Mountains of the Moon, which my hypothesis, making those mountains to be a meridional instead of an equatorial range, proposed to correct.

The difficulty of mapping general and vague information concerning countries otherwise unknown, is well understood by geographers; and that nothing could be more natural than that Ptolemy should have regarded the Mountains of the Moon as an equatorial rather than as a meridional range, is proved by the fact that the idea of such a range running from east to west across the continent, has always prevailed among geographers, as the ordinary maps of Africa plainly show. In that of the Irish Education Commissioners, used in all the National Schools, the mountains are laid down in the direction thus indicated.

It would take up far too much time were I to attempt to detail the process of reasoning by which I placed in this meridional range the sources of the Nile.† It will be sufficient to state that Ptolemy having described the Mountains of the Moon as lying to the west of the Barbarian Gulf, and having myself been led to fix one extremity of the range in 2 degrees south latitude, I marked there the southernmost source of the Nile, and placed the northernmost in 7 degrees north latitude, comprising within those extremes the sources of the Tubiri, as the upper course of the White River

* These particulars are given in my paper "On the Sources of the Nile in the Mountains of the Moon," read at the Meeting of The British Association in 1848, and printed in the "Edinburgh New Philosophical Journal," Vol. XLV., pp. 221—251.

† For those reasons I may refer to the paper cited in the preceding note.

is called, and of the Sobat—which rivers I regarded as Ptolemy's two main streams of the Nile;* not taking into account, though not ignoring, the great western arm,—the Nile of Herodotus and all other writers before Ptolemy,—known by the name of Bahr-el-Ghazal or Keilak. I need scarcely explain that, in the absence of positive knowledge, all these determinations were merely approximative. But at the same time it is due to myself to remark that, at the period when these ideas were made public, namely, in 1846 and 1848, the Snowy Mountains, Kilimanjaro and Kenia, had not been discovered, and we possessed no information respecting the lakes in the interior except of the most vague and indefinite character.

For many years previously Mr. Cooley had, however, occupied himself with the geography, both ancient and modern, of the interior of Africa; and the results of his studies as regards this portion of the continent had, in 1845, been collected by him in a paper on "The Geography of Nyassi," printed in the 15th volume of the *Journal of The Royal Geographical Society*. Though I have always differed on many points from the learned author's conclusions, I have never thought of denying to his paper the merit of containing much valuable information, of which I have often been glad to avail myself. By it my attention was, in particular, directed to the country of Mono-Moezi,† or U-Nyamwezi, as it is now more properly to be called, which had been altogether lost sight of by geographers prior to Mr. Cooley's investigations.

Differing, nevertheless, from that geographer as to the position of the great lake, and as to that of U-Nyamwezi, with which this lake has always been connected, I expressed the opinion that the approximate northern limit of that country had probably to be advanced to within two degrees south of the equator, while it might at the same time be necessary to move it westwards to between the 29th and 34th meridians of east longitude.‡ By a reference to Captains Burton and Speke's map of 1859, it will be seen

* See the accompanying fac-simile of the map of "The Upper Nile, according to Dr. Beke's Hypothesis, 1848," published in the "Edinburgh New Philosophical Journal" of that year, Vol. XLV.

† See "Journal of The Royal Geographical Society," Vol. XVII., p. 70.

‡ See "Journal of The Royal Geographical Society," Vol. XVII., p. 71.



how precisely the positions thus attributed by me to U-Nyamwezi and its lake (called by me "Nyassi," because I then knew no other name for it) agree with the positions determined by those officers. And it will likewise be seen that the spot which, in my map of 1848, I have marked as Ptolemy's southernmost source of the Nile, corresponds almost absolutely with the southern shores of Lake Nyanza, as laid down in that of Burton and Speke.

Having thus determined the position and direction of the Mountains of the Moon, and placed in them the head-streams of the Nile, I remarked that, "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."*

It is manifest then that the problem of the discovery of the source of the Nile was theoretically solved in 1846. All that was required was that my hypothesis should be verified by actual observation. With this view, I set on foot, two years afterwards, an expedition, which was undertaken by Dr. Bialloblotzky, and for his guidance I drew up the following plan of exploration:—

"Proceed from Egypt to Aden, and thence to Mombás on the East Coast of Africa, in about 4 degrees 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 W. and N.W., 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 Lufidji, 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

* See "Journal of The Royal Geographical Society," Vol. XVII., p. 76.



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 Sennár and Egypt.

“Notice any branches joining the main stream, and ascertain, as far as practicable, their length and direction.”*

It will be perceived that the peculiar characteristic of this plan of exploration was that it proposed to “hit the Nile” directly “on the head,” instead of struggling up the body of the stream from north to south, and groping (as it were) for its head in the dark. Unfortunately, the traveller proceeded no further than Zanzibar. Though the reasons for his abandoning the expedition have never been thoroughly explained, I believe a principal one to have been that, both on his way out and afterwards at Zanzibar, he was impressed by others, whose views were examples of the existing ignorance on the subject, of the futility of seeking for the Sources of the Nile in the position indicated by me.†

As what I thus did in 1846 and 1848 was communicated in those years to The British Association for the Advancement of Science and The Royal Geographical Society, and was recorded in the transactions of those two highly popular bodies;‡ and as the expedition set on foot in the latter year was patronized by the late Prince Consort, the Court of Directors of the East India Company, the eminent men of science who now occupy the chairs of The Royal and Royal Geographical Societies, and nearly one hundred noblemen and gentlemen, many of whom are distinguished as men of science or as philanthropists and friends of

* The full particulars of this expedition are given in the Appendix to “The Sources of the Nile,” pp. 145—155.

† In a letter dated “Agborne, Capital of Dahome, January 28th, 1864,” and published in the “Athenæum” of March 19th, Captain Burton states that Dr. Bialloblotzky “was not allowed to land on the continent by the late Col. Hamerton, Her Majesty’s Consul for Zanzibar, who foresaw that his throat would not be safe for a week.”—*April 4th*, 1864.

‡ “Report of the Meeting of The British Association in 1846: Transactions of the Sections,” pp. 70—72; “Report of the Meeting in 1848: Transactions of the Sections,” pp. 63, 64; “Journal of The Royal Geographical Society,” Vol. XVII., pp. 1—84.



Africa;* and as all these facts, which were at the time notorious, have become matters of history;—it is certainly a most extraordinary circumstance, and one not easy to be accounted for, that the claim of originality in his alleged discovery of the Source of the Nile should have been publicly set up by Captain Speke, and injudiciously advocated by his friends and supporters. Not only do the facts here stated disprove his originality, but from the publicity given to them, not only at the early period when they occurred, but likewise from time to time, down to the very moment when that traveller set out on his first journey, he has no ground whatever for pretending to have *independently* arrived at the same conclusions as myself: for they can leave no doubt on the mind of every impartial person that the results of my previous labours were not only known but were of essential service to him.†

As to the name U-Nyamwezi, which Captain Speke in like manner professes to have discovered to mean the “Country of the Moon,” I have to remark that my paper of 1846, “On the Nile and its Tributaries,” contains this specific statement:—“In the languages extending over the whole of Southern Africa, and of which that of the country of Mono-Moezi [U-Nyamwezi] itself is a principal dialect, the word *Moezi*, in various forms, means ‘the moon.’ And as Ptolemy was told, and as the fact now appears to be, that the source of the Nile is in the mountains, or hill-country of *Moezi*, we are warranted in concluding that he merely translated that expression into τὸ τῆς ΣΕΛΗΝΗΣ ὄρος, *the Mountains of the Moon* [das Mond-Gebirge]. We may hope therefore to have at length found the key to the *arcanum magnum* of geography.”‡

Notwithstanding my having thus expressed myself nearly eighteen years ago, I am now bound to protest against the use, or rather the abuse, which has since been made of this derivation—in the first instance by Dr. Krapf and his colleagues, and after them and on their authority by Captain Speke. And I must explain that, though *Moezi* or *Mwezi* happens to mean *moon*, it

* The list of names is given in “The Sources of the Nile,” Appendix, pp. 152—155.

† In confirmation of this assertion, see the “Athenæum” of January 2nd, 23rd, and 30th, 1864.—*April 4th*, 1864.

‡ “Journal of The Royal Geographical Society,” Vol. XVII., pp. 75, 76.



does not necessarily follow that U-Nyamwezi should mean *the Land of the Moon*. Ptolemy's informants heard the name from the natives of the coast, and endeavoured to make it significant; as has been the habit of all people, ancient and modern, and especially the ancient Greeks. We have remarkable instances of this in the Sea of Edom, which, as *Edom* in Hebrew means *red*, became "the Red Sea;" in Java, which, as *Java* in Sanscrit means *barley*, became "Barley Island;" and yet more appositely in the Etruscan city and port of Luna (now known as the Gulf of Spezia), which, like O Porto and Le Havre, really means *the Port*, but which, as *Luna* in Latin means *moon*, was supposed by the Greeks to have that signification, and was translated by them accordingly. It is fortunate that the evidence of this translation has been preserved by the geographer Strabo, who says explicitly that "the city and harbour of *Luna* are named by the Greeks the harbour and city of *Selene*."*

As regards U-Nyamwezi, Captain Burton informs us that the Arabs and people of Zanzibar, for facility and rapidity of pronunciation, dispense with the initial dissyllable, and call the country and its race Mwezi;† and as it is perfectly reasonable to suppose that the mountains on the way to that country should have been called by strangers, travelling thither from the sea-coast, the Mountains of U-Nyamwezi, or in the contracted form the Mountains of Mwezi,—just as their northern continuation has of late years been styled the "Abessinian Alps," and the "Highlands of Ethiopia;" it only wanted an interpreter, like Strabo in the instance of Luna, to say, "the Mountains of U-Nyamwezi or of *Mwezi* are named by the Greeks the Mountains of *Selene*," and there would have been no room for those fanciful notions about the country and the people of "the Moon." What the meaning of U-Nyamwezi may be in the native language of the country, is

* Λούνα πόλις ἐστὶ καὶ λιμὴν, καλοῦσι οἱ Ἕλληνες Σελήνης λιμένα καὶ πόλιν. Lib. V., cap. 11, § 6. See further on this subject my paper "On the Mountains forming the Eastern Side of the Basin of the Nile, and the Origin of the Designation 'Mountains of the Moon,' as applied to them," read at the Meeting of The British Association, in 1861 ("Report, Transactions of the Sections," pp. 184, 185), and printed in the "Edinburgh New Philosophical Journal" (New Series), Vol. XIV., pp. 240—254.

†. "Journal of The Royal Geographical Society," Vol. XXIX., p. 168.

not in the slightest degree material to the question now under consideration.

Still, although the fact may be that the name of the Mountains of the Moon originated in a mistranslation, this does not constitute any real objection to the employment of that name, which has been in use during so many ages, that it would scarcely be practicable, and certainly would not be judicious, to supersede it. The Mountains of the Moon, then, with their snowy summits and their sources of the Nile, will assuredly retain the designation which Claudius Ptolemy, rightly or wrongly, gave to them seventeen centuries ago.

I now proceed to lay before you a summary of the discoveries that have actually been made from the south. These originated with the members of The British Church Mission, at Mombás, established in June, 1846, by my old friend and companion in Abessinia, Dr. Krapf. In May, 1848, just at the moment when I was about to prepare in London my plan for an expedition to discover the sources of the Nile, by penetrating into the interior from Mombás or its vicinity, as I have already mentioned, the Rev. John Rebmann, during an excursion inland from the missionary station, discovered the snowy mountain Kilimanjaro.* The existence of snow on this mountain was long denied by many geographers, one of whom,† indeed, still persists in his scepticism, notwithstanding that Baron Carl von der Decken, accompanied by Dr. Kärsten, has recently ascended the mountain to the height of 13,900 feet, where he observed "a clearly defined limit of what seemed to be perpetual snow," at about 17,000 feet;‡ the elevation of the main peak being 20,065 feet, and that of a second peak upwards of 17,000 feet; which heights are about equal to those of some of the higher peaks of the Andes of South America.

Towards the end of 1849, Dr. Krapf discovered the yet larger snowy mountain Kenia, situate about two degrees to the north of Kilimanjaro; and in the following year he heard of a large lake

* See "Travels, Researches, and Missionary Labours," by the Rev. Dr. J. Lewis Krapf, 1860, p. xxvi., *et seq.*

† Mr. Cooley.

‡ "Proceedings of The Royal Geographical Society," Vol. VIII., p. 6.



called Baringo, situate to the north or north-west of Kenia, which he believed to be the head of the Nile.*

During the continuance of their missionary labours, Dr. Krapf and his colleagues likewise collected a considerable amount of information respecting the lakes further in the interior of the continent; which, not being properly understood, led to the supposition that there was one immense lake in Eastern Inter-tropical Africa, extending from the Equator to about twelve degrees south latitude; and this lake was accordingly delineated, in the shape of a gigantic slug, on a map known as the "Mombás Mission Map," which was published in the year 1855 by The Royal Geographical Society, and in the following year by The Church Missionary Society.† It was the supposed existence of this wonderful lake that gave rise to the first expedition of Captains Burton and Speke in 1856. The instructions given to the chief of this expedition by The Royal Geographical Society were as follows:—"The great object of the expedition is to penetrate inland from Kilwa [Quilwa], or some other place on the east coast of Africa, and make the best of your way to the reputed Lake of Nyassa; to determine the position and limits of that lake; to ascertain the depth and nature of its waters and its tributaries; to explore the country around it. . . . Having obtained all the information you require in this quarter, you are to proceed northward towards the range of mountains marked upon our maps as containing the probable source of the Bahr-el-Abyad, which it will be your next great object to discover."‡

With our existing knowledge of Eastern Africa, it will be most instructive—it may indeed give rise to grave reflections—to compare this plan of exploration of the Royal Geographical Society, with mine of eight years previously; which, after a lapse of eight years more, is now reproduced, as I have just read it to you,§ for the purpose of being acted on, without the alteration of a single letter.

* See Krapf's "Travels," *passim*.

† See "Proceedings of The Royal Geographical Society" (November 26th, 1855), Vol. I., pp. 8—10; and "Church Missionary Intelligencer," Vol. VII., No. 8, for August, 1856.

‡ "Journal of The Royal Geographical Society," Vol. XXIX., p. 5.

§ See pp. 15, 16, *ante*.

As far as we are acquainted with the southern Lake Nyassa, its northern extremity does not attain the parallel of Kilwa, in about nine degrees south latitude, where Captain Burton was directed to seek for it; whilst the alleged "range of mountains marked upon our maps as containing the probable sources of the Bahr-el-Abiad," had, for several years previously to 1856, been omitted in all continental maps, and likewise in such English ones as pretended to tolerable accuracy.

On arriving at Zanzibar, Captain Burton soon heard sufficient to convince him that the Nyassa or Kilwa Lake is of unimportant dimensions, and altogether distinct from the sea of Ujiji or Tanganyika; and he reported that, though the two waters had been run into one by European geographers, no Arab at Zanzibar ever yet confounded them.* Accordingly, departing from the letter of his instructions, Captain Burton so varied his plan of exploration as to render it in substance the same as mine of 1848.

The general results of this memorable expedition, on which the Lakes Tanganyika and Nyanza were visited and partially explored, must be well known to you all. I have reason to call it emphatically a memorable expedition, because it made the south-easternmost limit of the basin of the Nile, as laid down by me, a reality, whatever doubts may have existed, in the minds of some persons, as to whether Nyanza was or was not within that basin. That it must be so, or else my theory must be radically false, was evident; and so I publicly declared at the meeting of The Royal Geographical Society on the 11th May last, when it was announced by the President † that Captain Speke had "settled the Nile," but that no particulars had been received; and the opinion was at the same time publicly expressed by a member of Council, ‡ that, when those particulars should be known, it would be found that Nyanza was *not* connected with the Nile, but was separated from it by a range of mountains running from east to west.§

* "Journal of The Royal Geographical Society," Vol. XXIX., p. 14.

† Sir Roderick I. Murchison. ‡ Mr. Francis Galton.

§ See "Proceedings of The Royal Geographical Society," Vol. VII., p. 110; and "Who discovered the Sources of the Nile? A Letter to Sir R. I. Murchison," p. 7.



With what near approach to accuracy I had, however, determined the southern limits of the basin of the Nile hypothetically, is shown by my Map of "The Basin of the Nile," drawn by Dr. Petermann under my direction, and published in 1849,* of which an enlarged copy (including all subsequent additions and corrections) is now exhibited,† and on which are likewise marked the limits actually determined by Captains Burton and Speke. The red line is mine of 1849: the blue line that of Burton and Speke in 1859.

One great omission on the part of the travellers was, however, the not ascertaining from personal observation whether Tanganyika has any outlet, and if so, in which direction. Misled by his instructions from The Royal Geographical Society as to the position of the sources of the Bahr-el-Abyad, Captain Burton was unconscious of the great importance of this question; or he would surely not have quitted the lake till he had surveyed both ends of it, and positively determined at which of the two its waters issue from it.

Immediately on his return to England from his first journey with Captain Burton, Captain Speke set on foot the second expedition, in which he was accompanied by Captain Grant, and from which he has just returned.

In passing to the consideration of this second expedition, I must unavoidably restrict myself to its hydrographical results. Captain Speke's personal narrative‡ is in the hands of the public, and I dare say there are few of those I am now addressing who have not already seen the work.

Starting from Kazé, in U-Nyamwezi, in 5 degrees south latitude, which place had formed the central point of exploration on the former journey, the travellers took a northerly course between the two lakes Tanganyika and Nyanza, and thence continued along the north-west and northern portions of the Nyanza; when, Captain Grant having been sent away to the north, Captain Speke proceeded

* In the Map facing the Title-page these limits are marked precisely as in my original Map of 1849.

† By the late Mr. George R. Gliddon, in his "Handbook of the Panorama of the Nile."

‡ "Journal of the Discovery of the Source of the Nile," by John Hanning Speke, Captain H.M. Indian Army. 1863.

alone to the spot, in nearly 34 degrees of east longitude, and at a short distance to the north of the Equator, at which the river, which he supposes to be the Nile, issues from the lake at the Ripon Falls. From this point Captain Speke followed the stream downwards for about fifty miles, when he quitted it for a time; and having been rejoined by Captain Grant, the two proceeded together to Chaguzi, in $1^{\circ} 37'$ north latitude, where they again came to the river. On his way, Captain Speke appears to have crossed two large water-courses—or rush-drains, as he styles them—named Kafu and Luajerri, both of which are described as being channels for the discharge of the waters of Nyanza into the main stream; thus making the lake to have three outlets—a phenomenon which has given rise to much discussion. With our imperfect knowledge of all the facts, it would be hazardous to express any decided opinion on the subject.*

From Chaguzi the travellers followed the stream downwards for about fifty miles, as far as the Karuma Falls, in $2^{\circ} 15'$ north latitude. Here the river, running to the west, was quitted a second time, the travellers continuing their journey northwards as far as $3^{\circ} 40'$ north latitude, where they came to what they supposed to be the lower course of the stream they had left above. Near this they fell in with a large river named Asúa, flowing from the south-east, and believed to issue from Dr. Krapf's Lake Baringo; and at a short distance from this they came to the tree which, two years previously, the Venetian traveller, Signor Miani, is said to have marked as the extreme point of his exploration from the north.

It is material to mention that Captains Speke and Grant met with the persons engaged to meet them by Consul Petherick in $3^{\circ} 10' 33''$ north latitude; and as Kazé, their point of departure from the route of the former expedition, is in $5^{\circ} 0' 52''$ south latitude, we have here an absolute gain of rather more than eight degrees of latitude, or about 500 geographical miles, in a portion of Eastern Intertropical Africa previously totally unknown: a result which

* In an article in the "Westminster Review" (New Series), Vol. XXV., p. 315, it is suggested that Captain Speke may possibly be mistaken in assuming the "Victoria Nyanza" to be a single lake, just as the missionaries were with respect to their "Lake of U-Nyamwezi."—April 4th, 1864.



is quite enough to render famous the names of Speke and Grant, irrespectively of anything else they may have performed.

It now becomes my duty to refer to some things which the travellers have left undone. In the first place, they did not follow the river from its exit from Nyanza along the whole length of its previously unexplored course. Of this length, 200 geographical miles have yet to be explored, before it can be unquestionably asserted that the river which issues from Nyanza is the same that joins the Asúa lower down; and it is precisely within this unexplored portion of the stream that another question of importance arises. This is with respect to the level of the river (assuming it to be a single one) at different parts of its course. At the Ripon Falls, just after issuing from Nyanza, its level was found to be 3,308 feet above the ocean, and at the Karuma Falls it was made to be 2,970 feet; but as, from the observations at intermediate places, it appears probable that this latter is erroneous, it may be assumed to be only about 2,900 feet, which would give a fall of 408 feet in the distance of 160 geographical miles from the Ripon Falls.

This fall of two feet six inches per mile shows that the character of the river here does not partake of that of the main stream lower down, the fall of which, according to my calculations, is less than one foot per mile throughout.* Further, at Gondókro, about 250 miles below the Karuma Falls, the elevation of the White River is 1,900 feet at the very utmost, and possibly considerably less: so that there is a fall of 1,000 feet, or four feet per mile, at the least, to be accounted for in this part of the river's course, a considerable portion of which was unexplored by Captains Speke and Grant.

Another point to be noticed is, that between the Karuma Falls and Madi, near the junction of the Asúa with the main stream, the travellers are said to have got ahead of the flooding of the "Nile." As far as I can make out the facts, they appear to be these. On the 7th November, 1862, when Captains Speke and Grant were at Chaguzi, "floating islands of grass were seen going down the Kafu" river,† close above its junction with the main

* See "The Sources of the Nile," pp. 30—36. † "Journal," p. 557.

stream, "proving to them that the Nile was in full flood;"* and when they reached Madi, on the 1st February, 1863, they found they had "beaten the stream,"† which only came down to that place at about that time.‡ In other words, the waters of the river must have taken no less than eighty-six days to flow down the distance of about 200 geographical miles, being at the rate of about two miles and a quarter in twenty-four hours, which is inconsistent with the fall between the two extremities. To explain this extraordinary phenomenon, Captain Speke adopts the conjecture of Dr. Murie, whom he met at Gondókro, that the lake called the "Little Luta Nzigi," must be a great back-water to the river, which its waters must have been occupied in filling during the interval; and then, about the same time that the travellers set out from Madi, the "Little Luta Nzigi" having become surcharged with water, the surplus began its march northwards just about the same time when they started in the same direction.§ There is evidently much in all these matters requiring further investigation.||

Whilst advocating the connexion of Nyanza with the Nile—whether by the stream which unites with the Asúa near Madi, or by any other channel, is immaterial,—and assuming that the southern extremity of that lake may be the "top-head," that is to say, the southernmost limit, on that meridian, of the basin of the Nile; I cannot acknowledge this lake to be *the source* of the river, unless it be at the same time allowed that the Lake of Geneva is the source of the Rhone, because it is the "top-head," or northernmost limit, of that river.

The truth is, that neither a river's exit from a lake, nor the lake itself, constitutes the river's source. It is the principal stream running into and through the lake, that must be regarded as the head of the river which runs out of the lake; and as we know the

* "Journal," p. 560.

‡ *Ibid.*, pp. 598, 611.

† *Ibid.*, p. 598.

§ *Ibid.*, p. 611.

|| In page 319 of the article in the "Westminster Review," referred to in page 23, it is suggested that, instead of having "beaten the stream," the travellers *missed* it; the river left by them at the Karuma Falls being the upper course of the Djour, or some other tributary of the Bahr-el-Ghazal.—*April 4th, 1864.*

fact to be, that on the south and east sides of the Lake of Geneva are the snowy Alps of Switzerland, and that the Rhone has been traced up to its sources in those mountains, so likewise we know that, on the east side of Nyanza (which has not yet been explored) are the snowy Alps of Eastern Africa—the Mountains of the Moon; and knowing this, we may be sure that within these mountains will ere long be found the sources of the Nile, or such of them, at least, as form the principal stream running into and through Nyanza. And, as a peculiarity of most of the tributaries of the Nile is, that, after forming a curve of greater or less extent, they return upon themselves at a comparatively short distance from their sources, it is not improbable that the head-stream of the river has a like spiral course round a lofty mountain mass, similar in character to the snow-topped mountains of Samien and Kaffa, in which are some of the sources of the Atbara and the Sobat. This was my recorded opinion in 1846, before the snowy mountains Kilimanjaro and Kenia were talked of.* I repeated it in 1859, in my “Sources of the Nile,”† after the Lakes Tanganyika and Nyanza had become known. I reiterate it in 1864, now that Captains Speke and Grant have returned from visiting three sides of Lake Nyanza, leaving wholly unexplored a blank space of 50,000 geographical square miles (larger in extent than the whole of England and Wales) on the fourth and up-hill side of the lake, where the sources of the river have naturally to be looked for. I cannot say under what conditions perpetual snow may pass into the form of running water at or near the Equator—whether or not through the intervention of the glacier condition, as in higher latitudes. But, whatever may be the fact, it cannot fail to give occasion to the observation of some very interesting phenomena.‡

* “Journal of The Royal Geographical Society,” Vol. XVII., p. 81. † Page 28.

† Addition made to the Lecture at Leeds on February 16th, 1864:—In a Lecture delivered before the Literary and Philosophical Society of Newcastle-upon-Tyne, on the 8th instant, Mr. Brayley expressed the opinion that, assuming these snowy mountains to supply water to the Nyanza, that water must necessarily issue from glaciers: for, from the relative properties of fluid and solid water, it is impossible for a body of perpetual snow—that is to say, of snow at the lower limit of perpetual snow—to become a body of water, without first passing into the state of glacier-ice.

It may be well to meet here, in a few words, the objection which has been raised, to the effect that Kilimanjaro is an isolated peak, unconnected with and not forming a portion of any mountain range. This objection is hypercritical. Vesuvius is an isolated mountain; and yet, as an offset of the Apennines, it forms a portion of that range. And I believe Kilimanjaro in 3 degrees south latitude, Aiyalu in 11 degrees north latitude, and Jebel Dubbeh in 14 degrees north latitude, to be points of a line of volcanoes, in great part unexplored, which have risen along the eastern base of the mountain-range of Eastern Africa.*

There is, however, a very important point affecting the whole question of the position of the sources of the Nile, which is far from being settled. It is, whether the great Lake Tanganyika may not itself be included within the basin of the Nile. Upon this point the evidence is very strongly in the affirmative. Many years ago Mr. Macqueen received from a native of U-Nyamwezi, named Lief bin Said, some valuable information respecting the road from the sea-coast near Zanzibar to the junction of the river Malagarazi with Lake Tanganyika—being very nearly the road travelled by Captains Burton and Speke;—who, after describing the lake with remarkable accuracy, added, “It is well known by all the people there, that the river which goes through Egypt takes its source and origin from the lake.”† In confirmation of this assertion of Lief bin Said, Captain Speke himself, on his return from his first journey, recorded the following statement made by Sheikh Hamed, a respectable Arab merchant:—“A large river called Marungu supplies the lake [Tanganyika] 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 them, 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*

* See the *Times* of June 20th and 21st, September 24th, and October 16th, 1861; “*Edinburgh New Philosophical Journal*” (New Series), Vol. XIV., p. 246; and “*Report of The British Association for 1861—Transactions of the Sections*,” p. 186.

† “*Journal of The Royal Geographical Society*,” Vol. XV., pp. 371—374.



the water."* And in his present "Journal," the same traveller thus expresses himself:—"Ever perplexed about the Tanganyika being a still lake, I inquired of Mohinna and other old friends what they thought about the Marungu river [at its southern extremity]: did it run into or out of the lake? And they all still adhered to its running *into* the lake—which, after all" (adds Captain Speke) "is the *most conclusive* argument that it does run *out of* the lake."†

I will not attempt to follow this extraordinary train of reasoning, but will content myself with remarking that, whereas in the map inserted in "The Sources of the Nile," I marked Tanganyika as being within the "not impossible" limits of the basin of the Nile, I am now inclined to place this lake within the *probable* limits of that basin,‡ and to make it, in fact, the upper course of the giant river of Egypt.

As opposed to this conclusion, it may be said that the map accompanying Captain Speke's "Journal" shows a range of mountains, marked "Mountains of the Moon," encircling the small Lake Rusizi, at the north end of Tanganyika; which mountains would effectually prevent the latter lake from joining the Nile. I am sorry to be obliged to say that such a range of mountains has no existence except on paper. Long ago Captain Burton denounced these mountains as being "wholly hypothetical, or rather inventive;"§ and in Captain Speke's original map, sent from Egypt to The Royal Geographical Society,||—on which is a note signed "J. H. Speke, Captain, 26th February, 1863," declaring that "nothing remains *to perfect* the map but to shift the longitudinal lines, if required,"—this moon-shaped range of mountains is not laid down, but the name is given to two parallel ranges, represented as flanking the northern portion of Tanganyika, at least two degrees to the south of the position attributed to the "Mountains of the Moon" in Captain Speke's

* "Blackwood's Magazine" for September, 1859, Vol. LXXXVI., p. 352.

† *Op. cit.*, p. 90.

‡ It is so marked on the Map facing the Title-page of the present Lecture.

§ "The Lake Regions of Central Africa," Vol. II., pp. 90, 91.

|| Captain Speke's original Map was published by Mr. E. Stanford, in June, 1863.

present map. By expunging, then, this imaginary range of mountains from the map, ample space will be left for Tanganyika to join the Nile; not however by the Tubiri or White River, but by the Djour, or some other stream communicating with the Bahr-el-Ghazal (the Nile of Herodotus) further to the west.

Should, then, the fact eventually prove to be that Tanganyika is connected with the Nile, it would result that this lake—or, more properly speaking, the source of the river Marungu, which enters it at its southern extremity—would be the true head of the Nile. In this case the hydrographical system of this enormous river would extend through 40 degrees of latitude, or over one-ninth of the circumference of the globe; and the length of the stream itself would probably be as much as four thousand miles, with a fall of less than six inches per mile on its entire course, inclusive of all cataracts and rapids. In this peculiarity, likewise, the Nile would maintain its character of the most remarkable river on the face of the earth.

Beyond the southern extremity of the hydrographical system of the Nile, the great water-parting of Africa—that is to say, the continuation of the Mountains of the Moon—ceases to be between the Nile and the rivers flowing towards the Indian Ocean; for thenceforwards it separates these latter rivers from those flowing into the Atlantic. The determination of the southernmost limits of the basin of the Nile will consequently establish at the same time the water-parting between the head-streams of the two great rivers of Southern Africa, the Congo and the Zambezi. Thus the recondite Jesuit, Athanasius Kircher, will be found to be right in substance, if not in form, when stating, as he does in his *Mundus Subterraneus*,* that in the Mountains of the Moon is the great *hydrophylacium* of Africa, the central point of division between the waters flowing to the Mediterranean, to the Atlantic, and to the Indian Ocean.†

Where this central point of division actually exists, our still insufficient knowledge of the interior of Intertropical Africa does

* Vol. I., p. 72, *et seq.*

† See "Journal of The Royal Geographical Society," Vol. XVII., p. 82.

not enable us to determine. But, if it were allowable to attempt to be definite in a matter which is necessarily indefinite, it might be placed in 9 degrees south latitude and 27 degrees east longitude.

When, in 1846, I first made known my theory, a friend,* who was then (but is no longer) a member of Council of The Royal Geographical Society, laughingly remarked it was well that the Cape of Good Hope was where it is, as at all events I could not carry the head of the Nile further south than that. What my friend thus said in jest may perhaps, after all, prove to be nearer the reality than either he or I myself then contemplated.

Taking all these matters into consideration, it results that the plan of an Expedition to Discover the Sources of the Nile, drawn up by me in 1848, has been only partially carried out by the two exploratory journeys of 1856 and 1860, and that another expedition is indispensable for the accomplishment of its object; and, bearing in mind the part that I have taken during so many years in the solution of this great geographical problem, I have decided on completing my work by undertaking this third expedition in person. A task of this magnitude cannot be, however, and ought not to be, attempted by any private individual without public assistance; and I therefore propose to open a subscription, for the purpose of raising the funds necessary for enabling me to carry out my intention.

In itself, my plan of 1848 does not require any substantial modification; but, with our existing knowledge of the Upper Nile and its tributaries, which is likely to be ere long greatly augmented, it may be sufficient to restrict the field of my labours to the regions lying altogether to the south of the Equator. To Signor Miani, Madame Tinne and her relatives, to Baron Theodore von Heuglin and our countryman Mr. Baker,† may be left the task of exploring the basin of the Nile north of the Equator, unless indeed the present Viceroy of Egypt, Ismail Pasha, should himself decide on carrying out the intentions of his illustrious

* Mr. John Arrowsmith. † I have since heard that Mr. Baker is on his way home.

grandfather; whilst Baron Carl von der Decken has devoted himself to the task of exploring the countries lying to the east of the Mountains of the Moon, and of following up to their sources the chief rivers that flow from those mountains into the Indian Ocean.

It may be asked, and especially here, in the City of London, What will be the practical result of my proposed expedition? What real benefit will be derived from the discovery of the Sources of the Nile? The answer is very simple.

In the first place, the determination of the Sources of the Nile will, in its practical operation, be the throwing open of the largest and most important portion of Eastern Africa to British commerce. The value of these immense regions, hitherto so little known, can scarcely be conceived; and the marvel must be to every inquiring mind, why it is that, during so many ages, the efforts of civilized nations to establish relations with the interior of the vast continent of Africa should have met with so little success.

The cause is explained in a Letter which I had the honour of addressing, in January, 1852, to the President of the Board of Trade (now Lord Taunton).* In that Letter, after directing attention 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

* This Letter, and several others addressed to the Foreign Office and to the Board of Trade, between the years 1843 and 1852 inclusive, were printed for private use, in March, 1852, in a pamphlet with the title, “Letters on the Commerce and Politics of Abessinia,” etc.

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 Inter-tropical Africa is approachable with the greatest facility."

The travels of Livingstone, Burton, Speke, and Grant, have proved the truth of what I thus represented to Her Majesty's Government twelve years ago; and the report of Colonel Rigby, Her Majesty's Consul and Agent at Zanzibar, lately printed,* shows what might be the development of the commerce of Eastern Africa under proper management. In 1834 Zanzibar had little or no trade; in the year 1858-9 the exports of ivory, gum-copal, and cloves, were of the value of £239,500, and the total imports and exports amounted to no less a sum than £1,664,577 sterling; and where formerly only a few small country craft were seen, the tonnage of merchant vessels during the year mentioned was 25,340 tons.† This large and lucrative trade, which is in the hands of natives of India and a few foreigners, has sprung up under the primitive rule of an Arabian Prince; and (as Colonel Rigby bears witness) it affords a proof of the great resources of Eastern Africa.

It is perhaps owing to the highly remunerative character of the commerce of East Africa, and to the fact of its having been during ages a monopoly in the hands of the natives of the shores of the Persian Gulf and Southern Arabia,—not to speak of the Portuguese, who during the last few centuries have occupied portions of the African coast,—that its extent and even its nature have only of late begun to be properly appreciated.

The gum-copal of Zanzibar, which I have just named, affords

* Commercial Reports received by the Foreign Office from Her Majesty's Consuls between July 1st, 1862, and June 30th, 1863.

† *Op. cit.*, p. 239, *et seq.*



a striking instance. This article is the produce of East Africa, where the supply is said to be limited only by the will of the lazy natives to dig it up and bring it to market.* Carried to Bombay, its origin is there altogether lost sight of—perhaps designedly concealed; and this Zanzibar copal comes to Europe under the name of “Bombay gum-anime,” and is said to be the produce of India, washed down by the rivers to the coast. What a light does this throw on the history of the *Emporia* of antiquity, which were, and in some cases still are, imagined to produce the articles brought to them for sale, sometimes from immense distances, either by sea or by land!

Thus the gold of Ophir, Havilah, and Sheba of the Hebrew Scriptures, was not the produce of the countries from which it derived its name, but was brought from East Africa,† just like the Bombay gum-anime; for the fact is—and its importance must not be overlooked as regards the future of Africa—that the mountains forming the eastern side of the basin of the Nile are a meridional metalliferous Cordillera, similar in its general character to the Ural and the corresponding great mountain ranges of America and Australia,‡ in various portions of which Cordillera gold has already been discovered. Within the Red Sea, gold-mines are known to have been worked from the earliest period of history till as lately as the fifteenth century, in the time of the Egyptian caliphs. When I was in Shoa, I was informed by Dr. Krapf that gold had been found near Tegulet, the ancient capital of that country.§ Captain Speke heard that beyond the Asúa river, in the Galla country, there is “an exceedingly high

* *Op. cit.*, p. 240.

† See my “*Origines Biblicæ*,” Vol. I., p. 115; “The Sources of the Nile,” p. 62.

‡ This opinion was first expressed in a note, dated March 6th, 1852, in page 4 of my printed “*Letters on the Commerce and Politics of Abessinia*,” referred to in page 31. It was repeated in my paper “*On the Mountains forming the Eastern side of the Basin of the Nile*,” to which allusion has been made in page 18, and was further discussed by me in the *Times* of November 3rd, 1863.

§ When I was told this in 1841, I had just had some pieces of basalt shown to me as *coal*, and I imagined there might be a similar mistake with regard to the *gold*. I have lately learned for certain, that coal has been found in Northern Abessinia; and I have therefore no reason for doubting that gold may exist where it was said to have been found.



mountain covered with yellow dust, which the natives collected, &c., &c.;"* meaning, as I conclude, that this yellow dust is gold-dust. And Dr. Livingstone and others speak of the gold-mines on the Zambezi, and further south.

In truth, the whole of the east coast of Africa, from Berenice Panchrysos (the All-golden Berenice) of the Greeks in the north, to Sofalat-edh-Dhahab (the Gold Coast) of the Arabians in the south, is auriferous; and were once the tide of gold-exploration to set in that direction, we should see people of every nation—not merely Europeans, Americans, and Australians, but Indians and Chinese, to say nothing of the natives of nearer countries—all crowding to the "diggings" in the Mountains of the Moon; and the result would be a complete social revolution in Africa, by which its hitherto barbarous regions would soon become assimilated to the other portions of the globe, where European enterprise has set its foot.

But it is not alone with a view to the commercial and industrial development of Africa that the eastern side of that continent presents peculiar advantages. From this direction that portion of the globe was not only originally peopled, but it also received in past ages its three religions, Mosaic, Christian, and Mohammedan, and from it we may cherish the hope that it will eventually be regenerated,—European enterprise and commerce being the precursors of Christianity and Christian culture and civilization.

In the communication to the President of the Board of Trade, to which I have already alluded, I remarked that—

"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 east to west, and from west to east*; 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 lawgiver. 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 the world-renowned fane of the idols of the Sabæans to the worship of the one true God.

* "Journal," p. 334.



“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.”

Within the last few days I have been informed that my good and zealous friend Dr. Krapf is acting, though independently of me, quite in accordance with the views which I thus expressed twelve years ago. He is establishing missionary stations on and near the Nile, along the line of road taken by these Mohammedan pilgrims on their way to and from Mecca, with a view to the dissemination of the truths of the Gospel, by the same simple means that Mohammedanism itself has been spread over the whole breadth of the continent. Though yet unacquainted with the details of the plan, I cannot but look on it as a movement in the right direction, and it has therefore my best wishes for its success; at the same time that I feel it to be my duty to recommend it to the British merchant, not less than to the philanthropist, and indeed to 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, when known, have for the most part been injured and debased, rather than benefited and ameliorated, by the contact of their civilized brethren.

In conclusion, then, I have to express my conviction—and I cannot but regard it as most auspicious that, in the distinguished person who has honoured me by presiding on this occasion,* I am addressing not only the head of this learned Institution, but the head of the Commerce of England, or I may rather say of the whole world—I repeat my conviction, that the exploration of the upper basin of the Nile and the determination of that river's Sources, will have this twofold result: it will unroll the sealed book of Intertropical Africa, and so close the Canon of Geographical Discovery.

* Thomas Baring, Esq., M.P., F.R.S., President of the London Institution.



"The pilgrims who frequent Mecca are almost of necessity merchants, trading their 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 violent and expensive, or indeed intentional, propagandism, but by the casual communication between these Moslem merchant-pilgrims and the native Africans through whose countries their routes happen to pass."

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It is to be my duty to recommend it to the Father of our race, not less than to the philanthropist, and to bid to every one desiring the improvement, both temporal and spiritual, of the millions and tens of millions of our fellow-creatures, to subscribe so little known, and who, when known, have for the most part been injured and debased rather than benefited and raised, by the contact of their civilized brethren.

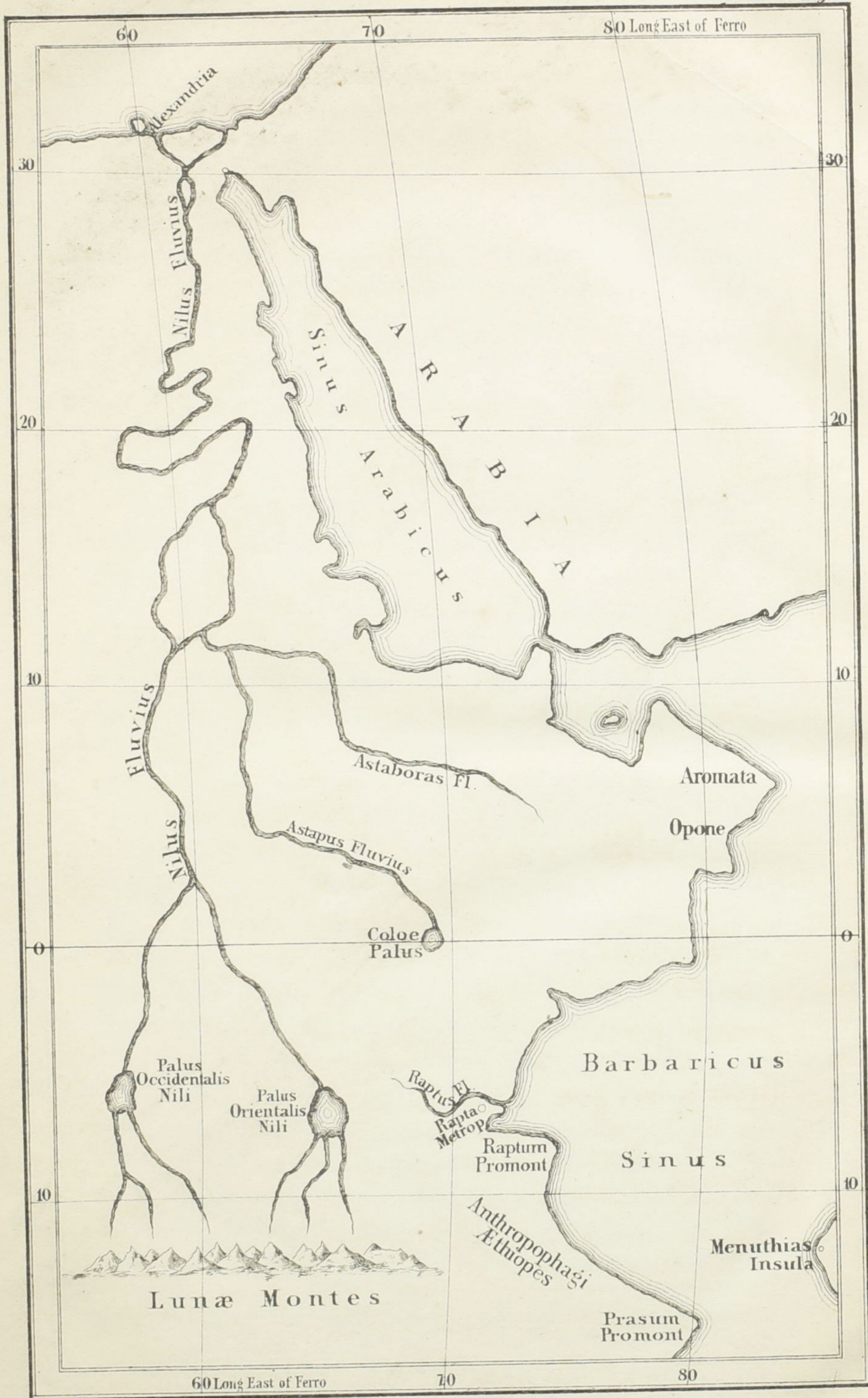
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Thomas Baring Esq., M.P., F.R.S., President of the London Institution.



THE NILE. ACCORDING TO PTOLEMY.

Fig. 1.





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The German Oriental Society
From the author

A LECTURE
ON
THE SOURCES OF THE NILE,
AND ON
The Means Requisite for their Final Determination.

DELIVERED IN THE THEATRE OF THE LONDON INSTITUTION,

ON
WEDNESDAY, JANUARY 20TH, 1864,

BY
CHARLES T. BEKE, Esq., PHIL. D., F.S.A.,
MANAGER, LONDON INSTITUTION.



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