WILEY

Eastern Africa, between the Zambesi and Rovuma Rivers

Author(s): Henry E. O'Neill

Source: *Proceedings of the Royal Geographical Society and Monthly Record of Geography*, New Monthly Series, Vol. 7, No. 7 (Jul., 1885), pp. 430-455

Published by: [Wiley](#) on behalf of [The Royal Geographical Society \(with the Institute of British Geographers\)](#)

Stable URL: <http://www.jstor.org/stable/1800051>

Accessed: 16/06/2014 08:08

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.

The Royal Geographical Society (with the Institute of British Geographers) and Wiley are collaborating with JSTOR to digitize, preserve and extend access to Proceedings of the Royal Geographical Society and Monthly Record of Geography.

<http://www.jstor.org>

JERVOISE SMITH; Rev. E. H. MAINWARING SLADEN; Mr. G. CARTER STENT; Mr. A. SPÜHLER; Major-General Sir HERBERT STEWART, K.C.B., the heroic soldier who died at Gakdul, on the Upper Nile, on the 16th of February of wounds received in his victorious battle of the 19th of January; Mr. R. STEWART; Mr. W. H. TWENTYMAN; Sir R. R. TORRENS; Captain JOSEPH THWAITES; Dr. J. TUCK; Surgeon-Major J. R. THOMAS; Mr. EDW. WELLER; Mr. A. B. WYON; the Duke of WELLINGTON, who took formerly a keen interest in the Society and its work, and served on the Council in 1869 and 1870; he died on the 13th of August last.

Eastern Africa, between the Zambesi and Rovuma Rivers.

By HENRY E. O'NEILL, F.R.A.S., H.M. Consul at Mozambique.

(Read at the Evening Meeting, May 11th, 1885.)

Map, p. 496.

I HAVE been asked to give you a summary of my journeys in Eastern Africa. But I fear I cannot do this without inflicting upon you a "twice-told tale," and from that I would spare you. Most of my journeys have already formed the subject of papers read before your Society, and narratives of others have been sent to the Foreign Office, whence they have found their way into the Blue Books.

As I desire, however, to conform as much as possible to the wishes of your Secretary, I will, without entering into any lengthy details regarding them, tell you what they have been, how it came about that I undertook them and what some of the chief results are that have been attained by them.

In 1879 I had the honour of being selected to fill the post which fell vacant by the death of Captain Elton—a distinguished traveller, well known to your Society—whilst he was endeavouring to push his way from Lake Nyassa to the coast. I had previously served between three and four years in the Royal Navy in East African waters, and during that time had qualified as an interpreter in the Swahili tongue and gained an insight into the working of the slave trade which has been invaluable to me.

Let me then run over as briefly as possible the journeys I have carried out since residing at Mozambique.

In 1879 I was engaged in a survey of the Maputa river in Delagoa Bay. You will remember that we were then engaged in the Zulu war, and perhaps recollect the long delay that occurred in the advance of our troops, owing to a difficulty in finding means of transport. It was thought that a flank movement into Zululand might become necessary and whilst we were negotiating with the Portuguese Government with regard to the landing of troops upon the southern shore of Delagoa Bay, I pushed up the Maputa river to try its depth, look into the adjacent country and see how far it might be made available for the

carriage of troops. Having passed the farthest point at which the river was navigable for boats of two feet draught and made a sketch survey of the river from its mouth to that point, I returned to the coast to prove fully in my own person the truth of our great surveyor Captain Owen's remark that it was one of the most pestilential rivers of East Africa, up which he tells us his boats did not reach more than 45 miles, owing to the number of fatal cases of fever that occurred to their crews.

The next year I carried out an examination of the Northern Mozambique coast up to Cape Delgado. This examination was made in native boats and in them I visited every bay, river, and creek between Mozambique and that cape. There had been some conflict of opinion with regard to the extent of the export slave trade from this portion of the coast. In truth this was not surprising, for the greatest ignorance prevailed at Mozambique respecting the minor bays, ports and trading settlements upon the coast. They appeared only to be visited by the natives and it was only from these that I could gain information regarding them, and therefore it was felt that the best way of arriving at the truth would be for me to visit all points whence slaves could be shipped and make personal inquiries at them.

It was upon these journeys that I had the great good fortune to bring to light two ports within 40 nautical miles of the capital of the province, one of which, Nakala, has since been pronounced by a distinguished Portuguese Naval officer, Captain Castilho, now Governor-General of Mozambique, to be "one of the finest harbours in the world." Some minor errors were also corrected, such as that which connected the Mkubure river with the southern branch of Memba Bay.

Again, in 1881 and 1882, more coasting journeys were carried out, both north and south of Mozambique, and the geographical results of the latter were, the discovery of a dangerous patch of rocks off Ras Mtende within 20 miles of Mozambique; an examination of the notorious Kivolani-Umfussi lagoons with their five outlets and investigation of the theory put forward by Captain Le Hunt Ward, R.N., that they formed "the delta of a large unknown river." Sketch surveys were also made of Shangaji or San Antonio river, and of Angoche and the connection of the latter with the river Mluli, as well as the changes that of late years had taken place in the delta were pointed out. Information, collected on the spot, was also gained respecting the numerous rivers which discharge themselves upon this part of the coast, and endeavours were made, which subsequent journeys in the interior proved to have been successful, to discover the really important of these and to define their deltas.

It was upon these coasting voyages that I first formed and matured my plans for the opening up of the interior beyond the coast belt. As I moved up and down the coast I saw I was working upon the borders of a country of which we knew absolutely nothing and regarding which many existing impressions were incorrect. Accurate information

regarding it was indeed difficult to obtain. Rumours there were in plenty, chiefly to the effect that the inhabitants were of such a barbarous character that it was unsafe, almost impossible, for a white to go amongst them. It is only when we remember these reports and the credence given them that we can explain the fact that no Portuguese, within the past four centuries, had ever penetrated it.

Of the physical features of the country little or nothing could be heard worth retaining. I had moved across the mouths of many rivers, such as the Lurio, Mkubure, Ligonya, and Likugu, which showed by the depth and breadth and number of their outlets that they formed no inconsiderable streams. But whence they came, what was the direction of their courses, what the description of country they flowed through and drained, was all unknown to us.

At certain points mountain ranges, such as the Sorisa, in the neighbourhood of Pomba Bay, approached the shore, and their broken, rugged summits could be seen stretching away into the far interior, diversifying the face of a country the nature of which, from its apparently picturesque and varied character, greatly increased our wonder and interest concerning it. What altitudes these mountains attained, what was their formation and character, what the lines of direction the hill ranges took and what the nature and disposition of the people who inhabited them, were all points respecting which we were in utter darkness.

As to the danger of penetrating the country, as I voyaged along the coast inquiring unceasingly upon the country and people, my fears, founded upon reports that were generally credited by the whites of the coast, began to vanish. I noticed that the most deterrent stories regarding the Makua and Lomwe people were circulated by those who themselves traded amongst them. This trade, at a period by no means remote, had consisted almost entirely of slaves, and I knew well, for in other African districts I had witnessed it, the dread of strangers and exclusiveness that the slave trade creates amongst a people who suffer from it.

Of these tribes my predecessor had written: "The fear of slave-dealers—their tracks are marked by many a burned and desolated settlement—has engendered a suspicious uneasiness among the villagers for so many years that it has now become an innate feature of the Makua character, is marked upon their faces, and colours every action of their lives. No communication with a stranger or an adjoining tribe is allowed without express permission from a large 'baraza' of chiefs. The Lomwe country lying between Makuani and Lake Nyassa may not be visited, under pain of capital punishment, unless express permission be beforehand gained. Tracks of country are purposely laid waste and desolated upon the frontiers, where armed scouts—generally old elephant hunters—continually wander, their duty being to report at the earliest moment any approach of strangers, who are invariably treated as

enemies." These words of Captain Elton well describe the notions that then prevailed upon the coast respecting the Lomwe tribe.

It was to discover how far they were true that I started, in the summer of 1881, from Mozambique with a party of thirty carriers, and although I looked upon that journey as only an experimental one, I succeeded in passing over more than 500 miles of new country and I satisfied myself that it was quite possible for a stranger to pass, with a well-conducted caravan, throughout the length and breadth of the Lomwe country, and I then determined, as soon as permission was given me, to open up a road from Mozambique to Lake Nyassa. I will not enter here into any of the geographical results of this journey as a paper upon it has already been read before your Society, in April 1882. Sufficient to say they proved that when the coast belt was once passed you entered a fertile, picturesque, and healthy country, and ridded us, once and for all, of the notion that the Lomwe were a barbarous and bellicose people.

I failed to gain permission from the Foreign Office to renew, in 1882, my attempt to cross from Mozambique to Lake Nyassa, so in that year I carried out two more coasting voyages and a short land journey, of a month's duration, in the country west of Cape Delgado Bay. Upon this journey I was fortunate enough to discover the Lake Lidedi, a small but beautifully situated lake at the foot of the Mavia plateau and discharging into the Rovuma river. I also succeeded in penetrating the outskirts of the country of the Mavia, a tribe who had never before permitted a European to visit them.

In 1883 I became entitled to five months' furlough, and receiving permission from the Foreign Office to pass it in travel in the interior, and aided by a grant from your Society, I left Mozambique, immediately the rains were over, for Lake Shirwa and the Nyassa. Again I will not enter into any details, for you have only recently, in November and December of last year, had papers upon this journey published in the 'Proceedings.' This was perhaps the most important of all my journeys, as I was able to make a running survey of the whole route between Mozambique and Lake Shirwa; a survey which I think will prove fairly correct, as over 2000 observations were taken upon it, all of which have been reported as perfectly satisfactory by the scientific staff of your Society. Some interesting points, such as the Inagu and Namuli Hills, were crossed, and the position and altitude of the range which forms, in this part of Eastern Africa, the outer edge of the great Central African basin, were defined and fixed.

From Lake Shirwa a detached expedition was made to the northward, which resulted in the discovery of the Lakes Amaramba and Chiuta, and the cutting off of a considerable portion of Lake Shirwa, which, it was found, had been carried, upon our maps, 14' too far to the northward. As a return was made to the coast by a more southerly route,

which terminated a hundred miles south of Mozambique, two routes were opened up upon this journey from the Lake district.

It is only left to me now to tell you of my travelling work last year. Called up the Zambesi and Shiré rivers by a difficulty we were having with our old friends the Makololo, I landed at Chironzi upon the Shiré and travelled by a circuitous route that led me outside the Makololo country, which I skirted and left to the westward. In doing this I was able to trace for some distance the course of the Ruo and some of its tributaries, and to correct the position of some well-known mountains, such as Chipironi—sometimes called Mount Clarendon—and of Mount Milanji.

At Blantyre I remained no less than seven weeks, and I hope I shall not be accused of a spirit of boasting when I say that it was here I think my best work has been done. I knew how sorely cartographers had felt the want of a reliable meridian in the Central Lakes districts. Upon all my previous journeys I had myself felt how great the advantage would be if the longitude of one place in the interior was really accurately fixed.

The area of unknown country in Africa is being rapidly diminished, and year by year recedes farther into the interior. Travellers working with chronometers and half-chronometers to obtain their longitude, start from the coast and have a journey of a month or more to perform before they even arrive upon the threshold of the field of their explorations. Upon this journey their chronometers have been jolted upon the heads of blacks, subjected when on the march to very high temperatures under an almost vertical sun ; subjected also to different degrees of atmospheric pressure, if the country passed over has been mountainous, and to great changes perhaps in the degree of humidity of the atmosphere.

These chronometers, it may be assumed, have been carefully rated on the coast and their errors on Greenwich mean time and rates obtained at some well-determined point. But it is in the highest degree improbable that, under such varying and unfavourable conditions, they have preserved their rates undisturbed, and consequently, before the traveller has even arrived upon the field he is intending to explore, his error on Greenwich mean time is in fault, and therefore, of course, his observations for longitude.

This state of things I saw would not be remedied until we had a meridian in the interior so reliably fixed that it could be classed amongst those known as the "secondary meridians" of the globe. By a "secondary meridian" I mean one unconnected by electricity with Greenwich or other well-marked spot, and which has had therefore to rely entirely upon astronomical observation for its determination. The meridian should be so placed as to be easily accessible to travellers in the Central Lakes districts, and the countries adjoining them.

No point, it appeared to me, could be better chosen than Blantyre

for this. Steam communication upon the Zambesi and Shiré rivers has placed it, you may say, upon the threshold of the unknown country bordering the Central Lakes. It is situated upon the great natural highway from the eastern seaboard into the heart of Africa, and therefore it is upon the route that would be chosen by the majority of travellers. It is the centre of a large and important mission station—that of the Scotch Established Church, branches from which are spreading in every direction; and a flourishing trading company—that of the African Lakes, possessing stores of every description, from which a traveller may obtain all he wants, have made it their headquarters. And finally, it is placed upon such bracing and healthy highlands that travellers may often seek it as a sanatorium and return there to recruit their health as well as to re-equip their expeditions.

My desire to get the meridian of Blantyre classed as a “secondary meridian” may seem to have been a presumptuous one for a single person to entertain. But let me say at once that I never permitted myself to hope that I should be able, alone, to place a sufficient number of observations in the hands of astronomers and cartographers at home to enable them to class it as such. I know the years of labour considered requisite and the thousands of observations that were taken by those astronomers who occupied observatories upon the “secondary meridians,” before they considered their longitudes to be accurately fixed, and this with far more perfect instruments and infinitely greater skill than I could bring to bear upon the work. I was perfectly aware that whatever I did could be nothing more than a small contribution towards the work that would have to be done before even a moderate degree of accuracy was attained. A beginning, however, would have to be made by some one, and I felt I should be well rewarded if what I did formed a nucleus of future work and induced others to continue the observations I had begun.

During the seven weeks in which I thus employed my leisure I obtained about 1200 observations for longitude of different kinds. As stars were of course preferred to the sun most of this was night work. I should have been able to obtain a far larger number had the weather been more favourable. But June and July in the Shiré highlands, though the coolest and pleasantest months, are also the cloudiest and wildest; strong winds and overcast skies prevented me from observing as often as I wished, and frequently, from the disturbing effects of the wind upon the artificial horizon, compelled me to reject observations I had taken. These observations are not all yet computed, but the result, as far as they have been, is to throw Blantyre $8^{\circ}3'$ to the east of the place it occupies upon the large scale map of this Society.

My work at Blantyre finished I had to think of returning to the coast. You have seen that my previous journeys had enabled me to lay open two new routes from the Shiré and South Nyassa to the coast; one terminating at Mozambique, the other at the rich trading settlement

of Angoche. Both these I saw were too long to be of much practical value to our settlers in the interior, at least until they had branched out further to the eastward. But the sudden trend taken by the coast-line to the westward, south of Angoche, seemed to place such ports as the Quizungu and Quillimane within easy distance overland from South Nyassa. We knew well that a trade route existed between the latter point and Quillimane. The village of a chief called Matapwiri on the north-east slopes of Milanji mountain, was a favourite rendezvous for parties from all parts of the country, and there the large caravans were organised, which, at regular periods, made their appearance at Quillimane. Apart, however, from the advantages which would accrue to trade, our troubles with the Makololo had shown us that a short overland route to the coast, which could be used as an alternative to the waterway of the Zambesi and Shiré, was absolutely necessary.

These then were the considerations which decided me to attempt the overland route from Blantyre to Quillimane. Quite lately you have had an account of that journey from one who accompanied me, and you have heard that it was successful. I will only add that great care was taken to make the route survey as accurate as possible, and about 800 observations have fixed the points of greatest interest on the road. Of the three routes to the Lake district traversed by me, this is undoubtedly the quickest and best, as Blantyre may be easily reached in fifteen days, and I can strongly recommend it to any one proceeding to the interior who desires to avoid the longer and more monotonous river journey.

I have now given you a brief sketch of all my journeys. If I have wearied let me ask you to remember it was not my own wish to speak of them. I am conscious that they have been sadly lacking in sensational incident. African travel, as far as I have experienced it, is rather a constant struggle against petty difficulties, lying guides, faithless carriers, extortionist chiefs, at times a dearth of food and water, with fever and ague, and other similar discomforts. These are the real difficulties of travel in such countries, and they are at times so trying and their monotony so intense, that I verily believe, the charge by a wounded elephant or buffalo bull—of which you generally hear much more—is hailed by most of us, when it comes, as a pleasing excitement and a welcome relief.

If I may lay claim to anything, it is only that by patient labour, careful inquiry, and faithful description, I have succeeded in rescuing from the realms of hearsay and imaginative geography, a great portion of that tract of Eastern Africa which lies between the Zambesi and Rovuma rivers, and by laying down its true physical features, I have driven out of the field a few of those elephants, with which—upon the authority of Swift—mappers are wont to bedeck the blank spaces of the earth.

But if poor in startling incident, I hope and believe the knowledge

we have gained of this country will be rich in useful and profitable result. My journeys have shown that instead of barbarous and savage tribes, you meet, in the Makua and Lomwe countries, with a people of peaceful and industrious disposition, and instead of depopulated or desert wastes, you have large tracts of cultivated country, as densely peopled as any parts of Africa. In many parts of this country, also, such as the Namuli Hills, healthy districts are reached at altitudes of between 3000 and 5000 feet, which provide a climate well adapted for European constitutions.

As from time to time I have described the mountain ranges and other principal features of this country, I will now only for a moment touch upon them. If we take a bird's-eye view of the whole Makua and Lomwe countries, we shall see one grand block of hills towering above all others and giving birth, from the innumerable streams that run off their precipitous sides, deeply scored valleys and broad lower slopes, to the largest rivers that discharge on the coast between the 11th and 18th parallels. These are the Namuli Hills. The most interesting point that the next traveller in this country can decide for us is whether the peaks of this range—which rise to an altitude of between 8000 and 9000 feet—are of volcanic formation. The range as far as I have climbed it, which is to a height of 5500 feet, showed no signs of this, and in no way differed in character from the other hill ranges of the country which are almost without exception granitic. The Namuli block of hills will well repay a careful examination not only from the wealth and variety of the flora the hill-sides present, but also from the fact that they form the home of the pure Lomwe, a decreasing race which I fear is being hunted off the surface of the earth by the neighbouring Makua and their own degenerate lowland brethren.

The frequency with which one encounters evidence of glacial action is another very interesting point to the traveller in this country. I have met with it upon the Namuli range, in the Inagu Hills and again much nearer the coast amongst a small block of hills called the Tugwi. You see it everywhere in the smooth dome-shaped tops and polished precipitous sides of the hills of the country, but the clearest evidence is afforded by the more striking spectacle of huge detached blocks lying across the summits of peaks, blocks many tons in weight, which could never have been carried there by any other known physical agency than that of ice. It has been remarked by a well-known African traveller, James Stewart, that this part of Africa “has never received its baptism or been regenerated by water,” and to that he ascribes its barren character north of the Nyassa. But whether the continent has ever been submerged is yet a doubtful and disputable point; Professor Drummond, of Glasgow, believing that his discovery of certain shells in the road cuttings between Tanganyika and Nyassa, conclusively proves that it has.

This country will, I think, be of the greatest interest to you, from the fact that it immediately flanks a strong English colony which is in course of creation in the districts bordering the Nyassa and in the Shiré highlands. The strength of that colony, the progress it has made, and the magnitude of the interests bound up in it are, I think, but imperfectly understood at home. Perhaps this is partly due to the fact that the stirring events of late years have brought other parts of Africa more prominently before the public. The free discussion of the now defunct Congo Treaty, and the strength of the opposition to it, caused what little of English thought that could be spared from Egypt and the Cape, to be given to West Africa, and the Eastern Central districts have almost passed out of mind.

Therefore I will ask your permission to let me dwell for a few minutes upon our position in that country. Though the commencement of our occupation dates but a short time back, it has already become a real and permanent one. We have now four mission societies working in the field, and no less than thirteen mission and trading settlements upon it. The central station of the Scotch Established Church is the large and flourishing settlement of Blantyre, of the importance of which I have before spoken, and branches are radiating from it eastward into the country over which I have travelled. The Scotch Free Church have well occupied the western and southern shores of Lake Nyassa, and their substations stretch westward into the Mangoni highlands and northward, until they meet, midway between the Tanganyika and Nyassa, those of the London Church. The English Universities' Mission is now occupying the eastern shore of Lake Nyassa, and probably before long will have a connecting line of stations between the lake and the coast.

Trade, following close upon mission heels, has established steam communication upon the Zambesi and Shiré rivers, and upon the Nyassa; has founded a number of commercial settlements in the districts adjacent to these waterways, and bids fair soon to include the Tanganyika within the field of its operations. There are now five steamers upon the Shiré, Nyassa, and Tanganyika. Upon the Shiré highlands Scotch agriculturists are successfully raising sugar and coffee, and all the Lake missions are by their example encouraging the growth of useful products among the natives.

Where physical obstacles have been encountered, as at the Shiré rapids, roads have been constructed for waggon traffic, and tramways are now in contemplation. In order that you may better realise the work of this nature that has been done by the British settlers in the interior, I will mention one simple fact. When I visited Blantyre last year I found roads of better construction and greater length than are to be seen in the neighbourhood of Mozambique, which is, as you know, the capital of the Portuguese East African possessions.

In fact the first stage in the growth of a colony—a long one when

the settlers are solely dependent upon their own resources—has been got over at the chief of our Nyassa settlements quickly and well. Backed up by the assistance of home supporters, houses of brick and stone have been erected, some few with an upper story; and articles of comfort and luxury, not only those of necessity, are fast finding their way into the country.

Again, each mission station in the interior is the centre of a settlement of natives, who, harassed by marauding tribes and slave-dealers, have still a faith in the efficacy of British protection, and fly to its neighbourhood. Refugee slaves also, though English doors are now barred against them, crowd in numbers to the quieter and securer atmosphere of the surrounding, semi-attached villages.

The natives are being taught, without compulsion, habits of work; simply by placing within the reach of honest and moderate labour articles of European manufacture which they strongly desire. Habits of decency also and an improvement in moral tone follow the mission settlement; clothing becomes general, and many practices, of which the native may easily be made ashamed, fall into disuse. Where the missions are of an industrial nature, an artisan class is being formed from the most intelligent of the natives, rough indeed, but capable of handiwork which is of the greatest value in a rising settlement ill-supplied with skilled labour.

I say nothing of the higher and more lasting benefits conferred upon them by the Christian teaching of our missionaries, for this is neither the time nor place to dwell upon it.

These are some of the changes being wrought by, and good effects of the English peaceful invasion of Central Africa. I have only time to glance superficially over them; but I do not exaggerate when I say that English enterprise, working not only in mission, but also in other branches, is quickly altering the face of the country; has greatly improved the condition of the natives, and assisted, perhaps more than anything else, to check the slave trade in it.

There are so many, in England as well as in Scotland, who are strongly interested in the growth of this colony, that I feel I need make no apology for offering a suggestion by which I think its progress may be accelerated and English interests advanced in this portion of Eastern Africa.

First let me tell you that I have no wonderful plan to propose for the rapid development of the country. My scheme, if anything so simple and self-evident can be called a scheme, does not include a railway. Although we possess here, in the great line of the Central Lakes, and their eastern outlet, exceptional favourable natural features, I believe that the development of the country will only be attained through the expenditure of much labour, time, and money.

What I desire to point out is that we are running some risk of com-

mitting the same mistake with regard to the development of the interior that the Portuguese have committed with respect to the development of the coast, and if not courting the same failure, at least creating for ourselves greater difficulty than need be encountered. We are not, I think, sufficiently considering the geographical features of the country, or taking full advantage of the facilities nature has granted us in the plans by which we propose to open up the land.

Briefly, let me show you how the Portuguese have suffered by this neglect, and then we shall more clearly see the importance of avoiding a similar course. When the first Portuguese explorers arrived upon the East African coast their whole attention was given to the discovery of the best route to India, upon which, as an *El Dorado* of wealth, their hopes were centred. They cared nothing for developing the resources of Eastern Africa, and, with one exception—that of Sofala, which had the conquest of the gold country of Monomotapa in view—the points they occupied were simply looked upon as ports of call, or steps of the ladder they were constructing to India. Working then upon an unknown and often a hostile shore, an easy adaptability for defence became the first consideration, and they invariably selected islands, or, when compelled by want of these, to land upon the continent, they cut themselves off as much as possible, by a swamp or narrow isthmus.

The points then chosen they still occupy, although the condition of things has wholly changed, for now the opening up of the country, the encouragement of trade and the extension of their control over the people should be the first thought surely of the recognised rulers of the coast. Trade is handicapped by the establishment of custom houses upon islands distanced from the mainland; the power of Government is weakened by the removal of its centres to points difficult of access from the interior; and planters—private enterprise indeed in all its branches—are paralysed by the want of protection which this removal entails. Magnificent harbours and healthy points for settlement lie unutilised on every side, some, like Nakala in Fernão Veloso Bay, and the Quizungu, lying at the feet of rich and thickly-peopled districts to which they form, geographically speaking, the fit and proper outlets.

These are some of the causes to which the Portuguese failure in East Africa must, I think, be attributed, and, in my humble opinion, we are in one main respect in danger of repeating them. I want to lay stress upon the fact that there leads into the heart of Eastern Africa a splendid waterway, of which, if we are not wholly negligent, we are making at least a very poor use. You will more readily acknowledge what I say when I tell you that stations in the country south of the Zambesi and within 200 miles of that waterway obtain their supplies at enormous cost by land routes, which vary from 900 to 1400 miles, as they are counted from Durban, Port Elizabeth, and Cape Town respectively.

And we are advancing upon that waterway from the southward in greater numbers year by year.

But apart from the supply of outlying European stations, there is ample room for the expansion of commerce in the countries bordering upon the river. The Matabili, Mashona, and Manica countries, the two last of which, we are just beginning to learn, are the richest of all South African countries in gold, and, thanks to the hunting restrictions imposed by their powerful chiefs Lo Bengula and the late Umzeila, are still rich in ivory, should be tapped by means of this waterway. I can tell you that, owing to the primitive means of communication still in use, merchants at Tete, a point within 260 miles of the coast, claim, and have no difficulty in obtaining a profit of 150 per cent. upon their goods. And undeveloped as the trade is, no fewer than 300 boats and canoes leave Tete annually for the Upper Zambesi to barter again and exact infinitely higher profit upon the upper waters of the river. Ivory, indiarubber, oil-nuts, and gold are the articles of which this export trade consists. So you see that not only are the wants of the English colony springing up about the Nyassa to be supplied through this great gateway into East Central Africa, but it also forms the natural channel of supply for many of the mission, trading, and gold-mining centres, that English colonial enterprise is pushing further northward every year. It is also a ready and secure means of approach to countries traversed now only by the solitary hunter, but which, in centuries past, proved a rich field for the itinerant Portuguese trader and the wealth-loving Jesuit father. The Zambesi, after the coast belt is passed, divides a country, which some say, is destined ultimately to fall into English hands. Whether this is to be the case or not it will serve no useful purpose to inquire. But it will be well to bear in mind the importance of this river as the natural inlet of trade to this portion of Eastern Africa, and I believe that whoever gains a commercial supremacy upon it may well hope to govern the future of the people who dwell upon its banks.

As a waterway it is, I think, with all its faults, superior to the Niger; for though its navigation will always be broken at the Kebrabasa rapids, its waters will permit steamers, of light draught, to run upon it for nine and ten months in the year; whereas the Niger is navigable only for five. And upon the latter river we have an increasing trade, amounting even now to no less than 200,000*l.* sterling a year, and supplied through factories established at numerous points upon the river; whereas upon the Zambesi, from the Victoria Falls to Tete, a distance of over 800 miles, there is not a single commercial settlement. I would recommend then an increased use of this waterway, and, as a first step, an improvement in the steam communication upon the Lower Zambesi below Tete as well as upon the Shiré and Lake Nyassa. The outlay entailed by such an improvement may not only be made to repay itself, but, if well directed, will prove of incalculable benefit to the

country. The establishment of commercial agencies upon the river banks, will act as a spur to the industry of the natives; induce a more settled occupation of the country, and check the tendency an idle and impoverished people have to intertribal war and slave raiding.

It is impossible, when speaking of the natural resources and future development of this country, to pass over the evidence that is cropping up day by day of the existence in ancient times of a prosperous state or colony south of the Zambesi. Over a tract that stretches between the meridians of 27° and 34° east, and extends as far south as the 21st

RUINS AT ZIMBABWE.

parallel, ruins are being discovered which leave no doubt that this country was occupied in pre-historic times by a civilised people. I say in pre-historic times, for our earliest records of travel and trade upon the East African coast tell us nothing of it. And they go back in such works as the 'Periplus of the Erythrean Sea' to the beginning of the Christian era. Even if we suppose that Cape Prasum has been placed by the geographer Ptolemy too far down the coast when he gives it a latitude of $15^{\circ} 30'$ S., or that of Mozambique; it is certain that Greek, Egyptian, and Phœnician merchants in sailing twenty and twenty-five days before the north-east monsoon, must have reached points many

degrees south of the Line, and it is impossible to think that a colony of such extent and advancement could have existed in a state of complete isolation from the then known world. There are numerous indications

ANCIENT TOWER AT ZIMBABWE.*

that the ancient colony did not consist merely of one or two cities, but that it included a large extent of country and formed a fair-sized state.

* Nothing strikes one more, on looking at this building, than its likeness to a modern "blast furnace," and the probability naturally arises that it was especially constructed to furnish fires giving out the greatest heat.

In considering the reasonableness of the conjecture that the cities in which these structures are found are of Phœnician origin, we may remember that furnaces were used by the Phœnicians in their expiatory sacrifices of human beings as well as of animals. Rawlinson, quoting from Gesenius and other authorities—who, he tells us, base their statements upon inscriptions found amongst the ruins of Phœnician cities—states that "human beings were consigned to a glowing furnace" in the Temple of El, or Saturn, at Carthage. Again, we know the "priests of Baal" revelled in "burnt offerings," and the shape of the altars they used is indicated to us in Jeremiah xix. 5: "They have *built* also the *high* places of Baal to burn their sons with fire for burnt offerings unto Baal." It is very curious that, in times comparatively recent, we find these furnace-like structures, in the ruined cities south of the Zambesi, used by the natives upon occasion of "solemn feast and sacrifice." May not tradition, in handing down their original use, have furnished them with a reason for this?—The two woodcuts here given are from illustrations in the posthumous work of T. Baines, entitled 'Gold-Fields of South Africa.'—[H. O'N.]

Our knowledge of the country is still far from perfect. From the records of Portuguese conquerors of the coast we learn nothing. It is only of late years, and from the travels of such men as Erskine, Mauch, Baines, Mohr, and Selous, that we have discovered the monumental evidence it contains. Ruins of cities have been discovered which have stood, if the difference in climate be considered, nearly as well as the most enduring monuments of Egypt and better perhaps than those of Assyria, the wear and tear of time. In the imperfect state of our knowledge of the country it is impossible to fix upon any particular mass of ruins, and say that it was the chief city of the ancient state. Carl Mauch has assumed that the extensive ruins discovered by him comparatively near the Sofala coast, in 20° S. latitude, are those of ancient Ophir, and he supposes this country to have formed a part of the realm of the Queen of Sheba. The ruins of Zimbabwe which he has brought to light are certainly of great extent, and most remarkable for the strange shapes they present as well as for their enduring structure. We feel at once satisfied they could only have been erected by a people far advanced in the arts of civilisation. Walls 12 feet thick at the base and tapering upwards to a height, even now, of 30 feet, constructed wholly of small hewn blocks of granite, put together without mortar, and in which are embedded blocks of stone 18 and 20 feet in length, apparently to support a gallery, sufficiently testify to the ingenuity and industry of their builders. North of these, about Manica, many ruins are also to be found, and no less than 350 miles west of these again masses of masonry are to be seen, like those I have described in solidity and singularity of shape.

No words need be wasted in refuting the statement of Erskine that these cities were the work of Francisco Barreto, the Portuguese "Conqueror of Monomotapa." Barreto never succeeded in penetrating the country, and the title by which he is generally known, of the "Conqueror of Monomotapa," was given him before he had even left the Tagus, when setting out upon his expedition.

You will naturally ask if any inscriptions have been found to enable us to call written testimony to our aid in deciding the race or nationality of the founders of these cities. None have yet been discovered, but in truth no search can be said to have been made for them. That they exist I am well assured. Just before leaving Mozambique, I had a long conversation with the only man who can tell us much of the ruins around Manica. Although a native of Portuguese India, he has lived forty years in the country, and having married a native chieftainess called the Queen of Barue, he is the chief authority in that part of the country. His own stronghold is upon the mountain of Gorongozo, which you will find marked upon most maps. He assures me that about Manica there are numerous inscriptions, and from his description of

them I am inclined to think they are in cuneiform or wedge-shaped characters.

I should have told you perhaps before, that all the ruins that have been met with in this country are surrounded with surface gold-mines, to such an extent, indeed, as to lead to the supposition that the chief industry of this ancient colony consisted in working for gold.

I need not remind you what important and interesting historical questions may perhaps be solved by a reading of these inscriptions. I do not know if I hazard a very bold suggestion when I say that these cities are probably of Phœnician origin, and that, at a period long anterior to the commencement of the Christian era, a colony of that nation existed in this country whose chief industry was gold-mining. The date of its foundation it is scarcely possible to surmise. But we may recollect that the colonising tendency of the Phœnician people received a great impulse shortly after the conquests of Joshua (1450 B.C.) diminished the extent of their mother country, and drove them to the Palestine seaboard. Or if we go back further still and remember that the first home of this race—as far as we yet know it—was upon the western shore of the Persian Gulf and that an extensive migration must have taken place thence previous to their arrival on the Mediterranean and settlement in the land of Canaan, it is surely not straining conjecture to assume that whilst a portion of them pushed up the Straits of Babelmandeb, overcoming every difficulty presented by that “gate of tears,” another portion of them chose the far easier passage offered by a favourable monsoon down the East African coast.

A belief that in pre-historic times the Phœnician nation was far more widely scattered than it has hitherto been supposed they were, appears to be daily gaining ground. Recent discovery has brought to light many traces of an ancient civilisation of the origin of which we know nothing. Inscriptions found at some of these, amongst which I may mention those brought home from Easter Island by Sir Thomas Brassey, will, it is hoped, throw some light upon this field of research. There are some, who have made the subject the study of a life-time, who believe that the ancient cities, ruins of which are met with upon the Pacific Islands, and also many of those in Beloochistan, Afghanistan, and other distant parts of the globe, are due to a wide-spread emigration of the Phœnician race. If they, through a satisfactory reading of the inscriptions found there, should prove their contention, then the suggestion I have thrown out respecting the cities south of the Zambesi is, I submit, strengthened; for it will have been conclusively shown that neither distance nor intervening breadth of ocean presented insurmountable obstacles to the colonising enterprise of the Phœnician people. And there may prove to be some truth in the writings of Sanchoniathon the Phœnician priest, who assigns to his people a

marvellous antiquity, and valuable information may yet be gathered from a work hitherto considered fabulous and discreditable.

But apart from any evidence which lately found inscriptions may present, is it not difficult to believe that a nation which at least 1200 years before Christ had founded colonies in every part of the Mediterranean Sea, had passed the Straits of Gibraltar and established themselves upon the western coast of Spain, whose ships traversed the northern seas, and penetrating southwards discovered the Canary Islands, and who shortly afterwards sent out fleets with thousands of emigrants—such as those which left Carthage under Hanno—to found colonies upon the West African coast; is it not difficult, I ask, to believe that a nation capable of such enterprises as these would be deterred by any difficulties of distance or navigation from venturing to low latitudes upon the East African coast?

It does not, however, come within the scope of this paper to discuss this subject here. I have only ventured to say so much to show that East Africa, in the very earliest times, appears to have formed a favourite field for colonial enterprise, and I desire also to awaken your interest in the archæological treasures which, I am convinced, lie hidden there.

ASTRONOMICAL OBSERVATIONS BETWEEN THE MOZAMBIQUE COAST AND LAKE NYASSA,
TAKEN BY HENRY E. O'NEILL, F.R.A.S.

Places.	For Longitude by						For Latitude by		
	Sets of Lunar Distances.			Sets of Chronometer Sights.			Meridian Altitudes.		
	Body E.		Body W.	E. of Meridian.		W. of Meridian.	Body N.		Body S.
1. Blantyre	☉	*	☉	*	☉	*	☉	*	*
2. Ndimba	71	55	131	3	56	21	14	8	7
3. Chipoka (S.W. Mi- lanji Mt.)	..	..	..	4	..	6	..	..	1
4. Chumbusa (Ruo R.)	..	..	..	3	..	11	2	..	1
5. Machinjiri (S.E. Mi- lanji Mt.)	12	..	12	3	5	3	2	1	1
6. Luanza River	..	..	..	7	4	5	2	1	1
7. Malopa	..	..	..	4	3	3	3	1	1
8. Mpassu (Mlungusi R.)	..	..	..	4	3	3	1	1	1
9. Chimbwa	12	3	5	6	9	11	9	1	1
10. Mriamwendo (Tetema R.)	..	..	..	..	4	3	1	1	1
11. Chilemba	..	..	..	2	3	3	6	1	1
12. Msuva (confluence of Lukwali and Mlung- gusi R.)	..	..	..	3	5	8	4	1	2
13. Lunani (Praso Buroro)	..	..	..	7	6	7	1	1	1
14. Chemina vill. (Lake Amaramba)	..	14	27	8	3	3	2	1	1
	4	9	5	6	5	6	1	2	2
Carried forward ..	☉83	*84	175	☉54	*92	☉91	*66	☉9	*20
									*22

ASTRONOMICAL OBSERVATIONS—continued.

Places.	For Longitude by						For Latitude by		
	Sets of Lunar Distances.			Sets of Chronometer Sights.			Meridian Altitudes.		
	Body E.		Body W.	E. of Meridian		W. of Meridian.	Body N.	Body S.	
	☉	*	☉	☉	*	☉	☉	*	*
Brought forward ..	83	84	175	54	92	91	9	20	22
15. Chiüta Lake ..	..	..	..	..	3	..	..	1	..
16. Mkanyea (E. Shirwa) ..	..	..	..	..	..	..	..	..	1
17. Masabango } N. ex-	..	..	..	..	..	..	..	..	1
18. Kiromono } tremity	..	..	..	..	..	..	..	2	1
19. Mikoko } Shirwa	..	..	..	..	..	..	..	2	1
20. Chigwadu (Luasi Hill)	..	..	..	..	..	..	..	1	1
21. Makanyera (Mlusi R.)	..	3	..	..	..	..	..	1	1
22. Nangoma (Lukotokwa R.)	..	..	..	..	..	..	..	1	1
23. Nawaruma ..	..	25	..	..	9	..	..	2	2
24. Yano camp ..	..	13	..	..	4	..	..	2	..
25. Ananihobe (Likugu R.)	..	..	..	..	..	..	..	1	1
26. Mwederi (Namuli Hill)	..	7	3 ..	9 ..	7	5 ..	..	..	1
27. Egwoli (Inagu Hill)	..	6	..	3	3	3	..	4	4
28. Namügu (Malema R.)	..	8	..	3	..	..	..	1	1
29. Napüsa (Inagu Hill)	..	12	..	4	..	6 ..	..	1	1
30. Najiwe ..	..	..	..	4	..	4	..	..	1
31. Namürola ..	..	7	..	6	..	17	..	1	1
32. Mkubure ..	..	3	13	2	..	6	..	1	2
33. Shalawe ..	5	..	..	2	..	5	..	1	1
34. Ngambo River ..	2	..	..	3	..	..	..	1	1
35. Tugwi ..	..	3	..	1	..	2	..	..	1
36. Nagulue ..	..	..	..	..	1	2	..	2	1
37. Mbadu ..	..	..	1	5	..	5	..	2	2
38. Namume ..	..	..	..	1	..	..	..	..	1
39. Umlaban Camp ..	..	..	..	2	..	..	..	..	1
40. Koeni ..	..	..	..	2	..	..	..	..	..
41. Ngambo ..	..	..	..	1	..	..	..	..	1
42. Mangasanji (Manasomba Hill)	..	..	..	6	..	..	1	..	..
43. Mulira (Manasomba Hill)	..	..	..	..	..	..	1	..	..
44. Mlolo (Mongwe Hill)	..	..	..	6	..	..	1	..	..
45. Ntunda ..	..	..	..	4	..	5	1	..	1
46. Ruo River (Junction with Shiré)	..	..	..	..	..	..	1	3	7
47. Chironzi (Shiré R.) ..	..	..	..	5	..	5	..	..	1
48. Chiwangu do. ..	..	..	..	..	..	..	1	..	..
49. Morambala (S.W.) ..	..	..	..	3	..	3	1	..	..
50. Shamo (Shiré R.) ..	..	..	..	..	..	..	..	..	1
51. Maruru (Zambesi R.)	..	..	..	13	..	4	1	..	..
52. Mopea (Mutu R.) ..	..	..	..	4	..	..	..	..	..
53. Menangene ..	..	..	..	2	..	..	..	1	..
54. Chemsaka ..	2	..	4	1	..	1	..	2	1
55. Nangadi ..	..	1	..	2	..	6	..	2	2
56. Natiaka (L. Lidedi) ..	..	2	1	1	..	4	..	2	1
57. Lishehe ..	..	..	..	1	..	1	..	..	2
58. Mkopoka ..	..	..	..	..	..	..	..	1	3
Total sets of ..	☉92	*174	☉20	*258	☉152	*119	☉17	*58	*71
Observations ..	266	278	271	259	75	71			

ASTRONOMICAL OBSERVATIONS FOR MAGNETIC VARIATION.

Places.	By Altitude Azimuth.		By Time Azimuth.	
	E. of Merid.	W. of Merid.	E. of Merid.	W. of Merid.
Namūrola	..	1	..	1
Najiwe	1	1	1	2
Napūsa	1	1	1	..
Egwoli	1	1	1	1
Mwedederi	1	1	1	1
Total ..	4	5	4	5

ASTRONOMICAL OBSERVATIONS FOR ABSOLUTE LONGITUDE.

Places.		By Moon's Altitudes.
Blantyre		55
Machinjiri		20
Msuva		21
Total		96

OBSERVATIONS FOR HEIGHTS ABOVE SEA-LEVEL BY BOILING-POINT THERMOMETERS
CHECKED BY ANEROID BAROMETER.

Places.	Heights above Sea-level.	Places.	Heights above Sea-level.
	feet.		feet.
1. Blantyre	3288	17. Ludia R.	1998
2. Ndima	3016	18. Mwedederi (Camp) ..	3046
3. Chipoka	1927	19. Mitini Hill, S. of Losi	5423
4. Chumbusa	1742	Valley.	
5. Machinjiri H. (Nalusu)	1706	20. Yano Camp, Walaga	2437
6. Luanza	1046	River	
7. Malopa	1247	21. Makanyera	2035
8. Mpassu, Mlungusi R.	1075	22. Mikoko (Shirwa). Mean	
9. „ Ridge near ..	1171	of three observations	
10. Chimbwa	652	for Lake Shirwa shows	
11. Mriamwendo	200	it to be	1946
12. Chilemba	20	23. Menangene	250
13. Napūsa Niheche R. ..	2337	24. Chimsaka	474
14. Natalea R.	3633	25. L. Nangadi	57
15. Western Ridge	4763	26. Lishehe	974
16. Namlugu Malema R. ..	2414		

GENERAL SUMMARY OF THE OBSERVATIONS TAKEN BY MR. O'NEILL.

Dates 1883 to 1884.	OBSERVATIONS.						Remarks.
	Lunars.	Time and Longitude.	Meridian Altitudes.	Lunar Altitudes for absolute Longitude.	For Variation of Compass.	Heights above Sea-level.	
Number computed	756	1590	146	63	54	84	Total number = 3850 single observations.
Number not computed	87	0	0	225	56	0	
Number observed	1632	1590	146	288	110	84	

Remarks by John Coles, Esq., F.R.A.S., upon the Foregoing Observations.

As by far the greater portion of Mr. O'Neill's observations have passed through my hands, I am enabled to form an accurate estimate of their value. The lunar observations are extremely good, not only as regards the accuracy with which they have been taken, but also with reference to the choice made in the objects between which and the moon the distances were measured, so as to obtain distances of nearly the same arcual value, east and west; thus to a very considerable degree eliminating the effects of collimation error in the mean results. Time observations were frequently taken for rating the watches, a practice too little followed, and in many cases altogether neglected by travellers; but by paying close attention to this matter, Mr. O'Neill has obtained most satisfactory longitudes.

Speaking generally of these observations, it is not too much to say that no traveller in Africa has ever taken such an extended series of good observations, and were I asked advice on this subject by an intending traveller, I do not think I could do better than recommend him to closely follow the example set by Mr. O'Neill both in the number and class of observations.

The PRESIDENT, in introducing the author of the above paper, said that Mr. O'Neill's name had long been familiar to the members of the Society, some of the most interesting communications on South-eastern Africa having been those transmitted to the Society by him. He was sure they would be glad of the opportunity of meeting and welcoming one who had contributed so much to the extension of accurate geographical knowledge in that part of the world. Mr. O'Neill had been familiar with the country from the year 1871 to the year 1879 as an officer in the British Navy engaged on that coast, before he accepted the office of Consul at Mozambique. To that office he was appointed in 1879. From that time to the present a portion of every year had been devoted by him to journeys by land or sea, in order to obtain further knowledge of the country. As was well known, about 1000 miles of the coast had been claimed by Portugal. A great part of that coast was for all practical purposes first surveyed by Mr. O'Neill himself,

No. VII.—JULY 1885.]

2 H

who discovered there, a little north of Mozambique, the harbour of Port Nakala, which was said to be one of the finest in the world. In subsequent journeys he made expeditions into the interior, the only knowledge of which was derived from slave-dealers, who had strong reasons for concealing the truth with regard to it. They represented a peaceful, quiet, well-regulated people as being given to internal wars, plunder, and to everything that could make travelling dangerous. No doubt the members recollected a very interesting paper by Mr. O'Neill, in which he showed that the natives were a kindly, friendly people, possessing a singular form of representative government. No great resolution was ever come to among them without hearing deputies from different villages, who assembled in a sort of rude parliament. It had been thought desirable that Mr. O'Neill should give a *résumé* of his various expeditions. He had just returned from Blantyre, but it was not so much for the purpose of describing his last journey, an account of which by his companion Mr. Rankine had already been read before the Society, as for the purpose of giving a general view of his travels, that he was present that night.

After the paper,

The Rev. HORACE WALLER said that Lieutenant O'Neill had set his mark upon the geography of East Africa in a way that hardly any other man had been able to. His work was of a high-class character, and the Geographical Society could not do too much honour to him, because he had raised the whole tone of African expeditions by his painstaking observations. He was evidently a worthy follower of Livingstone, who, with Sir John Kirk, first went to open up that country. It was impossible to overrate the importance of the vast water inlet to Africa which was formed by the rivers Zambesi and Shiré, and by Lake Nyassa, and it was gratifying to find that English and Scotch enterprise was at last taking the place of the lazy *régime* of the Portuguese. It was rather startling to find that the desiccation of water in Central Africa, which had been going on for many years, was now causing something like alarm at Lake Nyassa. It was easy to fancy that there was a sill where the Shiré flowed out of Lake Nyassa, and it was a matter of importance to have sufficient water in order to get into the lake from the river, but he believed that the fall of the water had been so very great that some alarm was now excited as to the possibility of passing out from the lake. It might, however, only be a question of dry and wet seasons. It was well known that in Lake Tanganyika there had been of late years an alteration in the level of the water, and it might be that the alteration in the level had solved the difficulties of those travellers who had tried to find an outlet to Tanganyika. It appeared that at certain times there was an outlet, at other times there was not, and he was afraid that a time would come when travellers to Lake Nyassa would say that there was no outlet from it. Lieutenant O'Neill had told him, to his great surprise, that persons could go on a tolerably good road from Quillimane to Blantyre in fifteen days. When first he (Mr. Waller) went into the country, he entered the mouth of the Zambesi with Dr. Livingstone on May the 1st, and reached a point at the foot of the mountain near which Blantyre stood in August, and yet he had a harder journey than Mr. O'Neill had. There would thus appear to be two strings to the bow, and one string they had to thank Mr. O'Neill for. The Portuguese, with an obstinacy of their own, seemed to have picked out the most unhealthy spots imaginable. It was remarkable to find Lieutenant O'Neill in 1885 using almost the identical words which Livingstone used when he first entered the country. Livingstone would not be content with stopping at any spot lower than 3000 feet above the level of the sea, and the first site he chose was within twenty miles of Blantyre. It only showed how the great sagacity of that extraordinary explorer had been fully

proved by those who had succeeded him. The longer he lived the more he was convinced that Livingstone was most careful in the observations he made, and the failures of many expeditions were undoubtedly to be traced to a disregard of the cautions which Livingstone laid down for travellers and missionaries. Exploration was alive all over Africa, but when the present excitement connected with the Congo discoveries, and annexations, and delimitations had subsided to some extent, he had no doubt they would go back to the words of Livingstone, and find that those who confined their exertions to lakes and rivers and the inseparable swamps would soon come to the end of their tether; whereas, on the other hand, those who would climb up to tablelands, and never be content to form settlements lower than 3000 or 4000 feet above the sea, would live to tell a different tale about Africa. It was the crass folly, the suicidal tendency of so many people in Africa, that had brought so many black marks against that continent. It was a magnificent country, and all those who had been in Eastern Africa felt the same infatuation for its beauty. Still it was not a country to be trifled with by Europeans. The first day a traveller entered Africa he was a better man than he was the second day, and the first year he was a better man than he was the second year. He did not at all believe in acclimatisation, but he believed in common sense, and when that was coupled with such indomitable courage and scientific accuracy as had been manifested by Lieutenant O'Neill, they might take heart of grace and thank God that such men had been raised up for African exploration.

Mr. CURT said that Lieutenant O'Neill had omitted to state in his paper, that two years ago when he was entitled to his furlough, he wrote to the Society saying that, if they would assist him with money, he would, instead of coming to England, devote his furlough to further explorations in Africa. The country shown on the map might be called O'Neill Land, for it had been visited by no other European. All previous great travellers followed a route more to the north, leading to the Lake Nyassa. Livingstone descended from Cape Delgado to the south of Nyassa in his last and fatal route, and the members of the Universities' Mission had done the same. Mr. O'Neill had had a double object—to extend geographical knowledge, and to oppose the slave trade. Along the coast from Ibo to Quillimane, that peculiar disease prevailed called "Portuguese blight." Though the Zambesi had been for 200 years in the occupation of Portugal, it was still without any of the appliances of modern civilisation, and the Portuguese had wished to treat the Congo in the same way; but Europe had proved too much for them. That country was the present home of the slave-traders, and he hoped that if Lieutenant O'Neill went back there he would do his best to put an end to them. It was only by opening up the country and making acquaintance with the tribes that they could put a stop to that dreadful curse of Africa. They must also try to prevent it coming to life again in a new form. From Ibo the French *engagé* system was beginning to spring up. Natives were brought down to Ibo, and put under nominal contracts, and transferred to French vessels. He hoped that Mr. O'Neill would have the means supplied him to make fresh expeditions into the interior, backwards and forwards from Mozambique and Ibo, until the geography of the country was thoroughly known, and slavery was entirely put a stop to.

Captain WHARTON said the strong point of Lieutenant O'Neill's journeys was the accuracy of his observations. There were a great many ways of travelling. A traveller might be a geologist, a botanist, or an ethnologist, but for the purpose of the Geographical Society it was most important that he should be a geographer, able to say where he had been. From the enormous amount of time that Mr. O'Neill had expended in astronomical observations there could be very little doubt as to where he had been, and his journeys would not be altered by any future travellers. It was a proud thing for him (Captain Wharton) as a sailor, to think that the know-

ledge Mr. O'Neill had acquired as a youngster at sea had been so very well utilised for the purposes of geography. Many members of the Society might hardly realise what it was to sit down after a long journey in Africa and take observations for three or four hours. It required no little zeal and a considerable amount of knowledge as well. To such travellers as Lieutenant O'Neill England owed a deep debt of gratitude, because journeys like his dealt the hardest blow at the slave trade. Mr. O'Neill had described the stories that were told about the country before he went there,—that the tribes were very bad and were always fighting amongst themselves, but those were merely slave-traders' stories told to keep honest white men out of the country. There was far more done by opening up the country than by keeping Her Majesty's ships cruising about up and down the coast. They all owed a great debt of gratitude to Mr. O'Neill for the energy he had shown during his Consulship.

The PRESIDENT, in proposing a vote of thanks to Mr. O'Neill for his interesting paper, said that he was sure the members would feel that the Council were thoroughly justified in choosing Mr. O'Neill as the recipient of one of the gold medals this year. Mr. O'Neill had been rather tied by the official tether, and had been prevented from taking as wide a flight as some other travellers in modern times. It would have been inconsistent with his official duties if he had attempted such a journey as that of Lieutenant Cameron across the continent, or of Mr. Thomson to Lake Tanganyika or to Victoria Nyanza. But within the limits in which he could work, he had done his work most thoroughly. Not the least pleasing part of what they had heard was the description of the friendly terms on which he, as well as Mr. Last, had lived with the natives they had come across. The more he (the President) had attended the meetings of the Society, the more he had become convinced that the character of the people as described by English travellers depended quite as much on the traveller himself as on the people. When the traveller wished them well, approached them skilfully, and had respect for their traditions and prejudices, he was well received; but when he carried with him too much John-Bullism, he very often rubbed them up the wrong way and was roughly received, and then came back and described them as a warlike and sanguinary race. As to the commercial importance of the country which Mr. O'Neill had explored, there could not be two opinions. He did not know whether Southern Africa was threatened with a great change in the supply of water, which would interfere with the river navigation, but one thing was quite clear, namely that river navigation, however convenient it might be, was always attended with danger from fever, whereas land journeys over country that soon became mountainous were generally healthy. Both from his sea journeys and his land journeys, Mr. O'Neill had acquired a right to speak on that subject because he had had little less than one hundred fevers at different times. They were all glad to see that he had escaped so many assaults of that deadly enemy to African travellers. He would soon be returning to Africa, and would no doubt find fresh fields for labour and exertion.

Mr. J. T. LAST read to the meeting the following remarks on East Africa. In introducing him,

The PRESIDENT said that the Cuthbert Peek grant, recently founded by the munificence of one of the members of the Council, had been awarded to Mr. Last for his explorations in Eastern Africa. The field of his explorations was not identical with that of Lieutenant O'Neill, being more to the north, but it would assist in giving a view of the steady advance of explorations in Eastern Africa if Mr. Last would give them some account of his journey in the country in which he had spent no less than eight years.

Mr. LAST addressed the meeting as follows:—It has been with great pleasure

and interest I have listened to the paper just read by Mr. O'Neill, on account of the several points of similarity between the countries and people he has visited and those around my station in East Africa; and knowing there is this similarity, I have ventured to write down a few notes bearing upon the districts which I have visited, hoping you would kindly allow me to read them to you. About eight years ago I had the honour to be sent out by the Church Missionary Society to their station at Mpwapwa, a district considerably to the north of where Mr. O'Neill has been travelling. After residing there for about two years, I removed thence to found a new station at Mamboia, a district some 50 miles nearer the coast. The station at Mamboia is in lat. $6^{\circ} 15' 30''$ S. and long. about 37° E. Here I resided till the end of last year. From both places I had frequent opportunities of making journeys into the neighbouring countries. These are Nguru to the north, Zeguha to the east, and Sagala to the south. These countries are without any ruling king or chief council, but are divided up into a number of small districts, each having an independent sultan, Zumbe or Mndewa, as he is called. These are all nominally under the Sultan of Zanzibar, and at some three or four places his Highness has soldiers, or else representatives to assert his authority. Practically, the chiefs and people of each district are independent, following their own laws and customs without reference to any outside power.

The country of Zeguha, which extends to within 20 miles of the East Coast, is generally flat or undulating. It is covered with thin forest, the trees of which are chiefly small, though some are large and well adapted for building purposes. Nearer the coast the country has a park-like appearance, having extensive spaces of short, smooth grass, with here and there large clumps of forest trees, all interlaced with countless creepers, and a thick brushwood underneath. In the middle of these clumps the Zeguha people build their villages, clearing away the centre and leaving the outer parts as a natural defence. The country of Zeguha, when compared with other districts, is not very fertile, though even here, in the little valleys, large crops of corn are raised which far exceed the wants of the natives.

Nguru and Sagala differ from Zeguha in being very mountainous and hilly. A chain of mountains extends through both the former districts and thence to Uhehe, in a north-east and south-west direction. This chain is disconnected in several places by extensive plains, which are dotted over with conical shaped or long sloping hills. The highest peaks in the chain are from 6000 to 7000 feet above sea-level, and are covered with magnificent timber trees, ferns, and undergrowth. Every here and there you find a native village, some on the very tops of the peaks, and close by are the fine gardens. The whole of the two districts of Nguru and Sagala is drained by the Wami, which takes its rise on the south side of the Itumba Hills. At the foot of the hills it is joined by a number of smaller rivers from either side, thence it flows on to Zeguha where it receives the Mkundi, Mvue, Mkindu, Rukagura, and other streams from the Nguru hills. The valleys and sides of the mountains, even to the tops, are very fertile. Here the natives produce Indian corn, two kinds of millet, beans, pumpkins, cassava, and bananas in abundance, far above what they can want for their own use. The sides of the mountains abound with springs of water, so that in times of drought the natives have only to dig little trenches over their gardens, and turn the water on, then they are able to irrigate their plots of ground and produce almost as good a crop as if they had had the proper amount of rain. I have often seen the natives thus working in their gardens, especially last year when it was dry. European vegetables grow very rapidly and come to great perfection on the mountain and hill sides. During several years' residence in East Africa I have given particular attention to the cultivation of European vegetables. Kindly allow me to give you a few details of the result. The station at Mamboia is nearly

4000 feet above the sea-level, and here I have grown potatoes, turnips, beet, cabbages of several kinds, carrots, parsnips, onions, radishes, lettuces, and many other things, and they have been just as good as one could get in England. I was digging up potatoes one day and turned up an extraordinary root, and on counting them I found there were sixty-two potatoes, all told. The largest was about 5 inches long, and as big round as one's wrist. Amongst them about a dozen were too small for eating purposes. Of course this was an extraordinary root, but it shows what the land can do. Most common English flowers grow well, as geraniums, verbenas, petunias, zinnias, balsams, and others. There is a great variety of native flowers. The well-known favourite—"Impatiens Sultani," came from the Mamboia Hills. I have planted a number of fruit trees from the coast, such as mangoes, guavas, pomegranates, oranges, limes, custard apples, papaws, pineapples and others, which all thrive well. Besides these there are the native bananas of which there are some eighteen varieties, and sugar canes of three kinds. In many places it is highly probable English fruit trees would grow well, especially on the higher elevations; on the tops of the mountains, blackberries and wild raspberries grow freely. I removed some roots and planted them at the station at Mamboia, and there they grow, producing bunches of fruit as large and good as any seen at home. Besides being able to produce all these useful articles of food, I believe there are many places where such things as cinchona, coffee, tea, and vanilla might be grown to great advantage. In the extensive low valleys large quantities of Indian corn and rice are grown. The corn is used chiefly by the natives, the rice is sold either to passing caravans or taken to the coast. There is never any want of food amongst these hills, and under European care and guidance the present produce might be increased enormously.

In the midst of the fertile district of Sagala are the Itumba Hills, which are remarkable for ironworks. An account of the manner of working the pits will be found in my paper on "A Visit to the Wa-itumba Ironworkers."*

There are many magnificent sites where settlements could be formed, the land for which could be easily obtained from the sultan of the place at the cost of a little present in cloth, and often for nothing, as they are always glad to have a white man living with them. The climate is very healthy, especially in the hill districts. At Mamboia I was always glad to keep a fire during the evenings of the months from April to the end of July, because of the cold. The thermometer during these months at 6 o'clock in the morning is generally about 50° Fahr., and used to rise to 65° or 70° at midday. In the warmer months it rises to 90° sometimes on the verandah, and the nights are correspondingly warmer, but it is never so hot or close as to need a punkah. There is a short rainy season between November and December lasting about a month. Then it is warm and dry till the middle of March, from which time to the end of June is the heavy wet season, or masika. The masika rainfalls are heavy, but do not last continuously more than a day or two at a time. Frequently almost all through the masika the former part of the day is fine, and the afternoon wet, so that between the showers one can generally attend to whatever he has in hand.

The natives of these districts are closely allied in customs, language, and character. They are a part of the same great Bantu family of which Mr. O'Neill has been speaking. They are all agriculturists, keeping only a few cattle here and there. All the chiefs who can, keep a herd of goats and sheep, but these are more as a mark of wealth and position than for food. In character they are all alike, very cowardly, and would at all times rather flee to the woods and hide, than stand

* Proceedings R.G.S., 1883.

to fight with a strange foe. The Zeguha people are very noisy and boisterous when they have the advantage over a small foe, but in times of danger they have no more real go in them than the quieter Nguru and Sagala people. These latter are eminently a quiet and peace-loving people. I have lived amongst them for nearly eight years, and have always found them most friendly disposed towards me, and so they would be to any stranger who conducted himself peaceably towards them. The languages of the several tribes are all closely allied, being of the same construction, but differing in forms and words used. None of them are particularly difficult to learn after the Swahili or coast language has been acquired.

It has been reported that the Germans are about to make a railway from the coast up towards the Lake district, passing through Zeguha and Sagala. If so, we may hope to see this rich and beautiful country soon opened up, and many settlers making their homes on its lovely mountain slopes. Any well-disposed person may always be sure of a friendly reception from the peace-loving natives, and if he is honest and fair in his dealing with them, he will find them always ready to assist and respect him.

GEOGRAPHICAL NOTES.

New Expedition to Eastern Africa.—Mr. J. T. Last is about to proceed to Eastern Africa, under the auspices of our Society, to explore the district in the neighbourhood of the Namuli Peaks discovered by Mr. H. E. O'Neill. Mr. Last will land at Lindi and proceed thence to the junction of the Rovuma and Lujenda rivers, the position of which he will fix astronomically. He will spend six months in examining the neighbourhood of the Namuli Hills, making an accurate survey and studying its climate, its chief mineral, vegetable, and animal products, commercial resources, and the condition of the native tribes, returning to the coast by way of the populous valley of the Likugu.

Letter from Rev. G. Grenfell on his Ascent of the Congo and its Tributaries.—We have just received the following letter from the Rev. George Grenfell, giving additional particulars regarding his voyage up the Congo in the Baptist missionary steamer *Peace*:—"The Lefini river is only navigable for two or three miles, when it becomes a torrent. The Nkenye or Nkië is a small tortuous stream falling into the Congo near the second parallel of south latitude. It has a mean width of 60 yards, depth of 12 feet, and current of 220 to 250 feet per minute. After 70 miles of steaming we only found ourselves some 25 miles N.N.E. of its confluence. The Mobangi, which falls into the Congo, forming a delta extending between 26' and 42' S. lat., is one of its largest tributaries. Following a mean course of north by east, I left it at 4° 30' N. still an open water-way. At 4° 23' N., just below the second rapids, I found it 673 yards wide; at no point lower down was it less in width. Mean depth 25 feet, and although the current was not more than 80 to 100 feet per minute, it means an immense volume of water to find running south at a point so near the supposed sources of the

35°

36°

11°

EAST AFRICA BETWEEN THE ZAMBESI & ROVUMA R

BASED UPON ASTRONOMICAL OBSERVATIONS

AND TOPOGRAPHICAL SKETCHES

OF

H.E.O'NEILL, F.R.G.S.

H.M.S. Consul Mozambique.

12°

Positions where Latitude and Longitude have been observed are underlined thus

Positions where Latitude only was observed are underlined thus: Mulira

Heights in feet above Sea level

SCALE OF GEOGRAPHICAL MILES

SCALE OF STATUTE MILES

13°

MA RIVERS

OBSERVATIONS

ETCHES

.G.S.

ie.

are underlined thus: Mbadu
lined thus: Mutira

40 50

40 50

13°

14°

15°

H.S. Sharban, R.G.S. del.

Section from Blantyre to

Section from Mozambique to

38°

39°

Blantyre to Quillimane.

Mozambique to Lake Amaramba.

40°