

## Letter to Roderick I. Murchison, 25 January 1856

*Livingstone, David, 1813-1873*

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[0001]

Hill Chanyuné, on the

banks of the Zambesi.

25<sup>th</sup> January 1856

Nº II [London]

[15 Whitehall Pl]

~~Sir Roderick Impey Murchison~~

Sir -

As we are now within a few days of the Portuguese station called Teté, I shall begin preparations for entering the world again while my men are engaged in paddling each other accross this broad river, by giving you a sketch of our progress thus far. [Pers things to be disregarded] [stet]~~Nº I. was written while waiting for rains at Linyanti and refers chiefly to the country North of that point. And this Nº II. is intended as a sort of continuation, but directed principally to the Eastern side of the continent.~~

When passing Seshéké in our way down the river in November last, the chief Sekéletu generously presented  
[0002]

ten slaughter cattle and three of the best riding oxen he could purchase among his people, together with supplies of meal and everything else he could think of for my comfort during the journey. Hoes and beads were also supplied to purchase a canoe, when we should come to the Zambesi again, beyond the part where it is constricted by the rocks. these acts of kindness were probably in part prompted by the principal men of the tribe, and are valuable as shewing the light in which our efforts are viewed.

But as little acts often shew character more clearly than great ones, I may mention that - having been obliged to separate from the people, who had our luggage, and to traverse about 20 miles infested by the Tsetsé during the night, - it became so pitchy dark, we could only see by the frequent gleams of lightning which at times revealed the attendants wandering hither and thither in the forest. The horses trembled and groaned, and after being thoroughly drenched by heavy rain we were obliged [0003]

to give up the attempt to go farther and crawled under a tree for shelter. After the excessive heat of the day, one is peculiarly sensitive to cold at night. the chief's blanket had fortunately not gone on. He covered me with it and lay [rested] himself on the cold wet ground untill the morning. ~~If such [^] [men] must perish before the white man [race] by an immutable law of Heaven, we would [must] seem to be under the same sort of "terrible necessity" in our "Caffre wars" as the American professor of Chemistry said he was, to [when] [he] dismember[ed] the man [^] [whom] he murdered.~~ Our convoy down to Mosioatunya [Mosi-oa-Tunya] consisted of the chief and about 200 followers.

About ten miles below the confluence of the Chobé and Leeamby or Zambesi, we came to the commencement of the rapids[.], ~~and there~~ [L]eaving the canoes [there,] [we] marched on foot about twenty ~~more~~, [miles further,] along the left or Northern bank to Kalai otherwise called the island of Sekoté. As i[I]t was decided by those who [^] [well] know the country ~~well~~ in front, that we should [0004]

here leave the river, and avoid the hilly[s] ~~country~~, through which it flows, both on account of tsetsé and extreme ruggedness of the path. b[B]y taking a North East course ~~in order to meet~~ the river [^] [would be met ~~again~~] where it has become placid again. [^] [Before leaving this part of the river] I took a canoe at Kalai and sailed down to look at [^] [the falls of Mooatunya which proved] [to] ~~by far~~ [be] the finest sight I have in Africa. ‡[T]he distance to the "smoke sounding" falls of the Zambesi was about eight miles in a S.S.E. direction, but when we came within five miles of the spot[,], we saw five large columns of "smoke" ascending about

300 feet[,] [& exhibiting] exactly ~~as occurs during~~ [the appearance which occurs on] extensive grass burnings in Africa. The river above the falls is very broad[,] but I am such a miserable judge of distances on water[,] [that] I fear to ~~name a sum~~ [to estimate its breadth]. I once shewed a naval officer a space in the bay of Loanda[,] which seemed of equal breadth with parts of the river which I have always called 400 yards. He replied "that is 900 yards". Here I think I am safe in saying ~~the~~ it is at least a thousand yards wide. You  
[0005]

## 2 Sheet

cannot imagine the glorious loveliness of the scene from anything in England. The "Falls" if we may so term a river leaping into a sort of strait jacket are bounded on three sides by forest-covered ridges about 400 feet in height. (~~It is a pity there are no mountains beyond.~~) Numerous islands are dotted over the river above [^] [the falls,] and both banks and islands are adorned with sylvan vegetation of great variety of colour and form. At the period of our visit many of the trees were spangled over with blossoms, and towering above them all stands the great burly baobab each of whose (syenite coloured) arms would form the bole of a large ordinary tree. Groups of graceful palms with their feathery[-] formed foliage ~~lend their~~ [contribute to the] beauty ~~to~~[of] the islands. As a hieroglyphic[,] they always mean "far from home" ~~for~~ [to] one [^] [who] can never get over their foreign ~~ent~~ [aspect] in picture or landscape. Trees of the oak and other familiar forms stand side by side with the silvery Mohonono[,] which in the tropics, looks like the cedar of Lebanon. ~~and~~[T]he dark cypress[-] shaped Motsouri laden with  
[0006]  
its pleasant scarlet fruit[,] and many others [also] attain individuality among the great rounded masses of tropical forest. We look and look again and hope [^] [that] scenes so lovely ~~as must have~~ [enough to] arrested the gaze of angels ~~in their flight~~[,] may never vanish from ~~the~~ memory. A light canoe and men well acquainted with the still water caused by the islands, brought us to an islet[,] situated in the middle of the river and [forming] [^] [the] edge of the lip over which the water rolls[.]e[C]reeping to the verge, we peer down into a large rent which has been made from bank to bank of the broad Zambesi[,] and [^] [there we] see the stream of a thousand yards [^] [in breadth] suddenly compressed into [a]

[chanel of] fifteen or twenty. If you [I]magine the Thames filled with low tree covered hills immediately beyond the Tunnel and as far as [to] Gravesend -[,] the [its] bed of hard basaltic rock instead of London mud and a rent or fissure made therein [in the bed] from one end of the tunnel to the other down through the keystones of the arch, the pathway being one hundred feet below the bed of the river instead of what it is and [to a depth of one hundred feet] the lips of the fissure [^] [being] from [0007] sixty to eighty feet apart - suppose farther the [narrow] rent prolonged [^] [from the Tunnel to] as far as Gravesend [along] from the left bank, and [the] your Thames leaping bodily into the gulph, compressed into fifteen or twenty yards at the bottom, forced to change its direction and go from the right to the left bank, then turning a corner and go boiling and roaring through the hills, and you have [may conceive] something of what takes place with [similar to this part of] the Zambesi.

It [the river] is reported to run in [rush through] the rent about thirty miles in an E.S.E. direction, and when quit [free] of [from] its place of confinement [it] flows placidly again but away to [towards] the North East, till it gains [reaches] the Latitude of 15° 37' S where I [^] [am] now write[ing]. t[T]he falls are in 17° 57' S.L. the side of the fissure [^] [opposite to that] over which the river does not fall[s][:] is quite perpendicular and has a straight edge[,] except at the left hand corner where a rent being [is] visible[,] a piece seems inclined to fall off. It is composed of one unstratified rock. That [^] [The side] over which the river precipitates itself is perpendicular too[,] but in three of the five or six parts into which the water [stream] is divided at low water, about 3 [three] feet of the edge of the lip is worn off. Several pieces also having fallen in give this lip a serrated [0008] edge[,] but the water falls at once clear of the rock and becomes a fleecy mass as white as snow. the pieces of water[,] if I may so express myself[,] do not at once lose their cohesion[,] but in falling give off in their down ward course streams of vapour exactly as comets are represented on paper, or [^] [as] a piece of steel when burned in oxygen gas. t[T]he beautiful mass thus resembles a thousand comets speeding on their course. On looking down into the fissure on the right of the island where the largest quantity of water falls[,] we see nothing [is seen] but a dense white cloud with two bright

rainbows on it. (It was about midday and the Declination of the sun nearly the same as the latitude when we visited it) An immense stream of vapour rushes up from the cloud unlike anything I ever saw before. When 300 or 400 feet high[,] it loses its steam colour[,] becomes dark and descends in a shower[,] exposure to which for a quarter of an hour wet[ted] us to the skin. a[A] few yards back from the opposite lip[,] a dense unbroken hedge of evergreen trees stands. t[T]heir leaves are constantly wet by [from] the condensed vapour and from their roots several little rills run back into the gulp[,] but never reach the bottom[, for] the ascending columns of vapour literally licks them up [0009]

### ~~3 Sheet~~

off the perpendicular wall, before they are half way down. I say [have estimated the depth at] one hundred feet[,] deep but we cannot see what it is on the right[of] [^] [the island.] On the left of the island a large piece has fallen in[,] and that lying on one side of the chafing river below enables me to give [form] an approximation. My companions amused themselves by throwing stones down [^] [the falls] and wondering to see how small they became before they were lost in the cloud. In former days the three principal falls were used as places where certain chiefs worshipped the Barimo (gods or departed spirits) As even at low water[,] there are from 400 to 600 yards of water pouring over[,] the constancy and loud[ness] [of the] sound of the flow may have produced feelings of awe, as if the never-ceasing flood came forth from the footstool of the e[E]ternal. It was mysterious to them for one of their canoe songs says  
” The Liambai, nobody knows  
Whence it comes or whither it goes.”  
Perhaps the bow in the cloud reminded them of Him[,] who alone is unchangeable and above all changing things. But [0010]

not aware of his true character they had no admiration of the beautiful and good in their bosoms. Secure in their [^] [own] island fortresses[,] they often inveigled wandering or fugitive tribes on to others[,] which are uninhabited - and left them there to perish. In [that when] being ferried accross t[T]he river is so broad you can often not [^] [cannot] see whether you are going to the mainland or not. To remove temptation out of the

way of our friends, we last night drew the borrowed canoes into our midst on the island ~~on which~~ [where] we slept, and ~~got~~ some of the men ~~to make~~[de] their beds in them. I counted between fifty and sixty human skulls mounted on poles in a village near Kalai[,] being those of men slain when famishing with hunger; and felt thankful that Sebituane had rooted out the bloody imperious "Lords of the Isles."

That trade has never extended thus far from either the East or Western coasts is[,] I believe extremely probable from the grave of the elder Sekoté being still seen on Kalai [] ornamented with seventy large elephants' tusks planted round it[,] and there about thirty [^] [tusks] over the resting places of his relatives. Indeed ivory [0011] was used only to form the amulets and grave stones of the rich, and ~~are~~ [it is] now met with a rotten state all over the Batoka country. this fact I take as corroborative of the universal assertion[,] that no trader ever visited the country previous to the first and unsuccessful attempt of the Mambari[,] to establish the slave trade with Santuru[,] the last chief of the Barotsé.

Before concluding ~~about~~ [this account of] the falls it may be added that it [^] [the rent] is reported to be much deeper farther down, 200 or 300 feet perhaps; and at one part the slope down[wards] allows of persons descending in a sitting posture. Some Makololo once chasing fugitives saw them unable to restrain their flight, [&] dashed to pieces at the bottom. They say the river appeared as a white cord at the bottom of an abyss[,] which made them giddy and fain to leave. [Omit]I ~~suppose the great body of water so forcibly compressed must have worn the rock horizontally as is intended to be shown by the dotted line. t~~[T]he surface of the water at A being very narrow.[,] It must either be very deep or have worn a channel sideways[.].y[Y]et I could not detect any evidence of wear at the spot [which was] examined [0012] though it was low water, and from seven to ten feet of yellow discolouration on the rock[,] shewed the probable amount of rise. I have been led

to the supposition by the fact noticed by both Captain Tuckey and Commander Bedingfield in the Congo or Zaire[,] which[,] as well as the Orange river[,] would seem[s] to be discharged by a fizzle through the Western ridge. The breadth of the channel among the hills[,] where Captain Tuckey turned[,] will scarcely account for the enormous body of water which appears farther down. Indeed no sounding can be taken with ordinary lines near the mouth[,] though the water runs strongly and is perfectly fresh.

On the day following my first visit[,] I returned to take another glance and make a little nursery garden on the island[,] for having [I] observed that it was covered with trees[,] many of which I have seen no where else[,] and [^] [as] the wind often wafted a little condensed vapour over the whole it struck me this was the very thing I could never get my Makololo friends to do. My trees have always perished by being forgotten during droughts[,] so I planted [^] [here] a lot of peach and apricot stones and coffee seed. And [0013]

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And [A]s the island is unapproachable when the river rises except by hippopotami, if my hedge is made according to contract[,] I have great hopes of Mosioatunya's abilities as a nursery man[.] (On another island close by your speech [address] of 1852 lay [remained] a whole year. If you had been a lawyer[,] instead of a geologist, your claims to the discovery would have been strong[,] seeing [as] "a bit of your mind" was within sight and sound of the falls[,] long [^] [long] before the arrival of any European) I thank you for sending it.

The former name of the spot was Shongwé the meaning of which I cannot ascertain. The Makololo in passing near it said "Mosi oa tunya" "smoke does sound". Very few of them ever went near to examine the cause[,] before my visit. When the river is in flood[,] the vapour is seen and [^] [the] sound heard ten or more miles distant. Although I have not felt at liberty to act on my conviction on the subject of names[,] I think all rivers and hills discovered by Englishmen ought to have English names. the African name is known only to people in the locality alone I could not get the name Zumbo lately

from the people among the rivers and  
 [0014]  
~~passed Dambarari on the opposite side of the~~  
~~river[,] nobody having ever heard the name before.~~  
~~t[T]he same would have happened of course had~~  
~~they been English or Portuguese names[,] but we~~  
~~should not have the exeruciating nonsense~~  
~~with which by misspelling we and the printers~~  
~~disfigure the maps. See how many ways~~  
~~Beechuanas are mentioned Booshuanas~~  
~~Bootjouanas, Beitjouanas &c &c.~~  
~~Makratta for Makabé. Mareleta~~  
~~for Moretelé. Wanketzeens for~~  
~~Bangwaketsé. Beza (God) for~~  
~~Reza. We on the spot are often~~  
~~misled by getting information from~~  
~~foreigners[,] who pronounce names according~~  
~~to their own dialects[,] and are there by often~~  
~~guilty of leading those at home astray. English~~  
~~names too are surely better than [^] [the] round~~  
~~of Dutch names. "sand", "stone", "mud"~~  
~~or reed rivers". I do not urge the point~~  
~~but I think it merits consideration.)~~

Shaping our course now to  
 the North East[,] we left the hills which  
 constrict [confine] the river on our right. And  
 [0015]  
 When we got free of tsetsé and night travelling[,]  
 we found a fine[,] open country with gently  
 undulating lawns, ornamented with large  
 spreading trees[,] which had once give[n] shade  
 in towns and villages[,] the ruins of which  
 are everywhere visible. there are too [^] [also] many  
 patches of forest[,] but as [it] often happens  
 in this country[,] the wood grows chiefly  
 on the hills. the large game has now  
 undisturbed occupation of what were  
 the pleasant haunts of men[,] and immense  
 herds of buffaloes quietly grazing or reclining[,]  
 added [to the] beauty to[of] the scene. [N.P.]t[T]he courses of  
 the rivulets which have all a mountain  
 torrent character[,] as well as the [^] [temperature of the boiling]point  
 of ebullition of water[,] shewed that we were  
 now ascending the Eastern ridge. the  
 first [^] [stream] is named Lekoné and is perennial[.]  
 i[T]t runs in what may have been the antient  
 bed of the Zambesi[,] before the fizz[ss]ure was  
 made. I could examine it only by the  
 light of the moon[,] but then, it seemed  
 very like an antient river channel. It[The] [^] [ Lekoné ]runs



~~back or~~ contrary to ~~that~~ [the] direction in which  
the river [ Zambesi] did and does now flow [&] joining[s]  
[0016]

[the latter] five of six miles above Kalai. If little  
or no alteration of level occurred when the  
fizz[ss]ure was formed[,] then the altitude of the  
former channel being only a little higher  
than Linyanti, we have a confirmation  
of what is otherwise clearly evident[,] that the  
Zambesi was collected into a vast lake[,]  
which included not only Lake Ngami  
in its bosom[,] but spread westwards beyond  
Libebé[,] - South wards and Eastwards beyond  
Nchokotsa[,]—indeed in many parts south  
of Ngami[,] when an anteater makes a  
burrow[,] he digs up shells identical with those  
now living in the Zambesi. And all the  
surface indicated is covered by a deposit of  
soft calcareous tufa, with which the fresh  
waters of the valley seem to have formerly  
been loaded. ~~the Barotsé valley was~~  
~~probably dis-charged by the same means[:]~~  
~~seeing [for] Gonyé possesses a fizz[ss]ure character~~  
~~and so does another large cataract situated~~  
~~beyond Masiko's in the Kabompo. [N.P.] It~~  
~~would be interesting to ascertain if these~~  
~~rents were suddenly made and remain~~  
~~so [^] [in their original state or whether they are] or, are at present progressive. [0017]~~  
~~5 Sheet~~

I had a strong desire to measure a point  
of that of Mosioatunya but had neither the  
means of accurate measurement[,] nor [of]  
to mark[ing] the hard rock afterwards. they  
have proved drains on a gigantic scale[,]  
and if geologists did not require such  
eternities of time for their operations[,]  
we might hazard a hint about a  
salubrious millenium for Africa.  
Shall we say [^] [that] they are geologically recent[,]  
because there is not more than three feet  
worn off the edge subjected to the wear of  
the water[?] - and [that they] are progressive[, as] the  
gradual dessiccation of the Bechuanacountry shewing[s] a slow elevation of the ridges.  
No one will probably think much of the  
negative fact[,] that there is no trace of  
a tradition in the country of an earthquake.  
the word is not in the language and  
though events[,] centuries old[,] are sometimes  
commemorated by means of names[,]  
I never met with any approach to [0018]  
to a Tom. Earthquake or Sam. shake the ground

among them. Yet they do possess a tradition[,] which is wonderfully like the building of the Tower of Babel[,] ending differently however from that in the Bible[,] the bold builders having got their crowns [heads] cracked by the giving way of the scaffolding[.] t[T]here is also the story of Solomon and the harlots[,] and all refer [trace back] their origin to coming [a time when their forefathers came] out of a cave in the North East in company with animals. t[T]he cave is termed Loé - [^] [(Noé)] and is exceptional in the language[,] [^] [from] having masculine pronouns.

Still ascending the Western side of the ridge we cross another rivulet named Unguesi[,] which flows in the same direction as Lekoné[,] and joins the river [ Zambesi][,] above the point where the rapids begin. the next [^] [tributary] called ["] Kalomo["] never dries[,] and being on the top of the ridge[,] runs South[,] or South and by East[,] falling into the Zambesi below the falls[.]and[L]astly [0019] [^] [Lastly] we crossed the Mozuma or Dela flowing Eastwards. We continued the Eastern descent till we came to the Bashukulompo River[,] there [where] it may be said to terminate[;] for we had again reached the altitude of Linyanti. We intended to have struck the Zambesi exactly at the confluence[,] but [^] [we] were drawn aside by a wish to visit Semalembué[,] who is an influential chief in that quarter. The Bashukulompo River is here called Kahowhé[;] and farther down the Zambesi[,] it is named Kafué(~~Kafuöey~~) Passing through some ranges of hills[,] among which the Kafué also winds[,] we came to the Zambesi, a little beyond the confluence. It is here much broader than ~~at the~~ [that part of it called] Leeambye[,] but possesses the same character of reedy islands, sand banks and wonderful abundance of animal life. It was much discoloured by recent rains; [^] [but as we] ~~coming~~[came] down along the left bank[,] it fell before we had gone 30 miles more than two feet . It is never discoloured [0020] above Mosioatunya. Hence I conclude the increase or flood was comparatively local[,]

and effected by numerous small feeders  
on both sides [banks][,] East of the ridge. When we  
ascended it [the Zambesi] towards Kabompo in [^] [January] 1854, the  
annual flood[,], which causes inundation[,]  
had begun, and with the exception of sand[,]  
which was immediately deposited at the bottom  
of the vessel[,], there was no discolouration.  
Ranges of hills stand on both banks as far  
as we have yet seen it. ‡[T]he usual mode  
of travelling is by canoe[,], so there are generally  
no paths, and nothing can exceed the tedium  
of winding along through tangled jungle[,]  
without something of the sort. We cannot  
make more than 2 miles an hour. Our  
oxen are all dead of tsetse[,], except two[,], and  
the only riding ox is so weak from the  
same cause as to be useless. Yet we are  
more healthy than in the journey to  
Loanda - ‡[T]he banks feel hot and  
steamy both night and day[,], yet [but] I have  
[had] no attack of fever through the whole  
journey. I attribute this partly to [not] having  
been ~~not~~ "too old to learn"[,], and partly  
to having had wheaten bread all the  
[0021]

6<sup>th</sup> Sheet

way from the waggon [^] [at Linyanti]. ~~In going North we~~  
~~braved the rains[,], unless they were continuous[,]~~  
~~and the under [lower] half of the person [the body] was wetted~~  
~~two [^] [or] three times every day by crossing streams.~~  
~~But now when we see rain approaching[es][,], we~~  
~~halt[,], light large fires[,], and each gets up a~~  
~~little grass shed over him. Tropical rains~~  
~~run through everything[,], but though wetted[,]~~  
~~comparatively little caloric is lost now[,], to~~  
~~what would be the case if a stream of~~  
~~water ran [^] [for an hour along] off the body. After being warmed~~  
~~by the fire[,], all go on comfortably again[,], and~~  
~~the party has been remarkably healthy. In~~  
~~the other journey too, wishing to avoid over-~~  
~~loading the men and there by make them lose~~  
~~[flesh] [heat] heart[,], I depended chiefly on native food[,]~~  
~~which is almost pure starch[,], [^] [and] the complete~~  
~~change of diet must have made me more~~  
~~susceptible of fever. But now by an~~  
~~extemporaneous oven, formed by inverting~~  
~~a pot over hot coals & making a fire~~  
~~above it, with fresh bread and coffee~~  
~~in Arab fashion I get on most~~  
~~comfortably. ‡[T]here is no tiring of it. [0022]~~  
I mention it [this] because it may prove a

useful hint to travellers who think they will  
gain by braving hunger or wet.

From the Longitudes[,] I ~~take~~ [estimate] the distance  
from [top to top of] the ridges to be about  $10^{\circ}$  of Longitude  
~~or~~ 600 geographical miles. I ~~purposely~~  
~~refrain from mentioning any of my own~~  
~~calculations of Lunar observations made~~  
~~because it would appear so presumptuous~~  
~~to allow them to appear on the same~~  
~~page with those of M<sup>r</sup> Maclear[,] who moreover~~  
~~undertakes the labour with such hearty~~  
good will[,] [^] [that] I fear to [the] appear[ance] as [of] undervaluing  
his disinterested aid. [N.P.] ‡[T]he Eastern ridge  
seems to bend in to the West at the part we  
have crossed[,] and then trends away to the  
North East thereby approaching the East  
coast. It is fringed on some parts by  
ranges of hills[,] but my observations  
seem to shew they are not of greater  
altitude than the flats of Linyanti. I  
cannot hear of a hill on either ridge[,]  
hence the agricultural phrase I employ.  
And if it is generally not broader than  
[0023]

600 miles, instead of calling the continent a  
basin shaped ~~one~~, it may be proper to say [that]  
it has a furrow in the middle[,] with ~~two~~ [an] elevated  
ridge on each side - [^] [each about 200 miles broad] the land sloping on both  
sides thence to the sea. [N.P] I have referred to the  
clayslate or ["]Keel["] formation of which I got  
a glance in the Western ridge. In the Eastern  
we have a number of igneous rocks, with  
gneiss and mica slate, all dipping Westwards,  
then large rounded masses of granite which  
appear to change the dip to the Eastward. I bring  
specimens of both classes of rocks along  
with me. Is this granite the cause of  
elevation? [End [...] ]

~~If your patience is not utterly exhausted~~  
~~by this long disjointed letter~~ I shall refer to  
but one topic more and then conclude. ‡[T]he  
ridges are both known to be comparatively  
salubrious[,] closely resembling in this respect  
that most healthy of healthy climates[,] the  
Interior of Southern Africa adjacent to the  
Desert. the grass is short. ø[O]ne can  
walk on it without that high fatiguing  
lift of the foot[,] necessary among the long  
tangled herbage of the valley. We saw

[0024]

neither fountain[,] nor marsh on it[,] and singularly enough we noticed many of the plants and trees which we had observed on the slopes of the Western ridge. In Angola[,] parts - which once were thought to be so unhealthy as to be set apart for the punishment of criminals of the deepest dye, and transportation there deemed much worse than to any part of the coast[,] - are now known to be the most healthy spots in the country. Such are the "Pedras negras" or black rocks of Pungo Andongo[,] and other parts. [N.P.]If my opinion were of any weight[,] I would fain recommend all visitors of the Interior of Africa[,] whether for the advancement of scientific knowledge or for the purposes of trade or benevolence[,] to endeavour to ascertain whether the elevated salubrious ridges mentioned[,] do [are] not exist as sanatoria [prolonged] farther North than my enquiries extend:[,] [and whether sanatoria may not be established on them.] At present I have the prospect of water-carriage up right to the bottom of the Eastern ridge. And [I]f a

[0025]

t Sheet

quick passage can be effected thither during a healthy part of the season[,] there is[,] I presume[,] a prospect of residence in localities superior to those on the coast. Did the [^] [Great] Niger expedition turn back when near such a desirable position for its stricken and prostrate members? [[End]

~~[P.SN.P] I have said that the hills which fringe the ridge on the East are not of great altitude. t[T]hey are all lower than the crest of the ridges, and bear evident marks of having been subjected to denudation on a grand scale. Many of the ranges shew on their sides[,] in a magnified way[,] the exact counterparts of mud banks left by the tides. A coarse sandstone rock which contains banks of shingle and pebbles[,] but no fossils, often exhibits circular holes[,] identical with those made by round stones in rapids and waterfalls. they are from {three}3 to four feet broad at the brim, wider internally and six or eight feet deep[.]~~

~~s[Some are convenient wells others are filled  
 with earth[,] but there is no agency now {0026}  
 in operation [^] [in the heights in which they appear] which could have formed  
 them. Close to the confluence of the Kafue,  
 there is a forest of silicified trees, many  
 of which are five feet in diameter[,] and  
 all along the Zambesi to this [^] [place,] where the  
 rock appears fragments of silicified  
 wood abound. I got a piece of palm  
 the pores filled with silica[, &] the woody  
 parts of [with] oxide of iron. I imagined it  
 was one of the old bottom rocks, because  
 I never could see a fossil in it in the  
 valley[,] but here ( Tette & Naké R<sup>t</sup>) I find  
 it overlying beds of coal! If it be  
 not heresy for a mere learner to utter  
 an opinion, I would suggest from  
 the bending in of the ridge[,] and the  
 appearance of the country Eastwards[,]  
 that in ancient times this continent  
 presented very much of the same  
 form as the Eastern coast of  
 America does now.~~

David Livingstone

[0027] [this column  
to be inserted]

Feet	[Temperature of the] Average point of [^] [brisk] Ebullition	
3288	Linyanti	205°1/3
4078	Bed of Lekoné R.	204°1/2
4608	Marimbass vil.	203 1/4
	Unguesi R.	202 1/2
5278	Kalomo R Top of Ridge	202°
4210	Naka Chinto on Eastern Slope	204°
3415	Semalembue's on Kafué R.	205 1/2
4078	Top of Hill at Semalembue's	204 1/2
3288	Down at bed of river 1 hour afterwards	205 3/4
1571	Near confluence of Kafué & Zambesi	209°
1440	confluence of Loangua & Zambesi = Zumbo	209 1/4

[note to  
 table in small  
 type]the onservations were generally  
 made at the same hour of the day  
 and when the temperature of the air  
 in the shade was about 80°. D.L.