

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

*Livingstone, David, 1813-1873*

Published by Livingstone Online ([livingstoneonline.org](http://livingstoneonline.org))

[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[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]  
[channel 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  
 fizz[ss]ure 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 fizz[ss]ure [^] [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 changed 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~~  
 fizz[ss]ure [^] ~~[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  
 fizz[ss]ure 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 ø[O]rangeriver[,] would seem[s] to be discharged by a fizz[ss]ure through the Western ridge. t[T]he 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]

4 Sheet

Anda[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[.] (ø[O]n 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.

(t[T]he former name of the spot was Shongwé the meaning of which I cannot ascertain. t[T]he 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  
Bechuanas are mentioned Booshuanas  
Bootjouanas, Beitjouanas &c &c.  
Makratta for Makabé. Marelata  
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 fiss[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 fiss[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(Kafööey) 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[cs][,] 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[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° 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[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 trans-  
portation 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] father  
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.S.N.P.]~~I have said that the hills which~~  
~~fringe the ridge on the East are not of~~  
~~great altitude.~~ ‡[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[S]ome 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	Marimbaz vil.	203 1/4
	Unguesi R.	202 1/2
5278	Kalomo R <u>Top of Ridge</u>	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 I 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.