

Letter to Roderick I. Murchison, 25 January 1856

Livingstone, David, 1813-1873

Published by Livingstone Online (livingstoneonline.org)

[0001]

Hill Chanyuné, on the
banks of the Zambesi.

25th January 1856

N^o 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 across
this broad river, by giving you a sketch
of our progress thus far. [~~Pers things to be disregarded~~] [~~stet~~] ~~N^o I. was
written while waiting for rains at Linyanti
and refers chiefly to the country North of that
point. And this N^o 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 Leamby 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 ~~it~~ 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 ~~cut~~ [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 Moutsouri 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

[ia 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 gulf[,] 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. ~~It~~ [that when] being ferried across ~~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 Bat[o]ka 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]range river[,] would seem[s] to be discharged by a fiss[ss]ure through the Western ridge. †[T]he breadth of the channel among the hills[,] where Captain Tuckey turned[,] will scarcely account for the enormous body of water which appears father 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]he former name of the spot was Shongwé the meaning of which I cannot ascertain. †[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 t̩̩ [^] [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 t̩̩ [of] the scene. [N.P.]t̩̩ [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 or 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 Bechuana country 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(Kafoocy) 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]

6th 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 overloading 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^r 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 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] 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. Andi[I]f a

[0025]

7 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[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^t) 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	Marimbas vil.	203 1/4
	Ungesi R.	202 1/2
5278	Kalomo R <u>Top of Ridge</u>	202°
4210	Naka Chinto on Eastern Slope	204°
3415	Semalebue's on Kafué R.	205 1/2
4078	Top of Hill at Semalebue'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 observations 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.