

Through Livingstone's eyes: Perspectives on water in nineteenth-century Southern Africa (1849-56)¹

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“His books are full of little word-pictures....” Harry Johnston²

Samevatting

David Livingstone (1813–1873) was deel van ‘n merkwaardige geslag ontdekkingsreisigers wat in die negentiende eeu Afrika vir die Engelssprekende wêreld oopgestel het. In *Missionary travels and researches in South Africa* (1858), ‘n klassieke reisbeskrywing, maak hy onder meer telkens mededelings aan mense in Brittanje en Noord-Amerika in verband met die wyse waarop hy die wateromgewing in suider-Afrika ervaar het terwyl hy op reis was in die streek. Livingstone se waarnemings werp waardevolle lig oor die wyse waarop inheemse gemeenskappe met die wateromgewing omgegaan het. Ook is daar aanduidings van die wyse waarop hulle die beskikbare waterbronne bestuur het. Ook word kennis geneem van Victoriaanse perspektiewe oor water in suider-Afrika.

Keywords:

Indigenous water systems; David Livingstone; Exploration; Colonialism; Water management; Malaria; Communications; Zambezi River; Southern Africa; Victoria Falls.

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 - 2 HH Johnston, “Livingstone as an explorer” *Science*, New series, 37(964), 20 June 1913, p. 927.

Introduction: The man and his observations

David Livingstone (1813–1873) is today best remembered as an iconic figure of African exploration. As author of arguably the most influential book on African travel in the nineteenth century, he had a captive audience in an era when Britain actively promoted colonial expansion in Africa.³ Livingstone epitomised a sense of ‘Britishness’ on the continent. He was, at the time of his first major venture into the interior, a young dedicated missionary who, in the role of living out his passion as explorer, opened up new frontiers of understanding of an unknown continent to information-hungry societies in the northern hemisphere. Livingstone became famous in his own lifetime but by the turn of the twentieth century, his image had become somewhat tarnished.⁴ Later reappraisals were even sharper,⁵ with issues such as his Victorian frame of reference and his ‘grand-design’ objectives coming under close scrutiny.⁶ However, these have not dimmed his endearing presence as explorer and writer. Present-day readers and his contemporaries in the nineteenth century⁷ alike are moved by his captivating prose. His perspectives always beg for a response or a personal observation from the reader. It is indeed inspiring stuff. Little wonder then that there is still, more than 150 years later, a significant demand for reading material on Livingstone.⁸

For the purposes of this discussion, one of Livingstone’s most engaging gifts – an extraordinary ability to express his observations in vivid prose – is of particular importance. In the discussion to follow attention will be given to his contemplation, at the time of his first major travels into the interior of southern Africa, of water as a natural resource in everyday life.

3 M Boucher, “Exploration and international fame 1852-1857”, M Boucher (ed.), *Livingstone letters 1843 to 1872: David Livingstone correspondence in the Brenthurst Library Johannesburg* (The Brenthurst Press, Houghton, 1985), p. 55.

4 G Lacy, “A century of explorations in South Africa”, *Journal of the Royal African Society*, 1(2), January 1902, pp. 215-229. Correspondence between FC Selous and the editor and G Lacy and the editor, following the article: G Lacy, “A century of explorations in South Africa” in *Journal of the Royal African Society*, 1(2), January 1902, pp. 229-235.

5 For the most comprehensive exposition, see O Ransford’s biography, *David Livingstone: The dark interior*, (John Murray, London, 1978).

6 DJ Siddle, “David Livingstone: a mid-Victorian field scientist”, *The Geographical Journal*, 140(1) February 1974, p. 72; R Bridges, “Review: Livingstone under the microscope”, *The Journal of African History*, 30(3), 1989, pp. 499-500; M Boucher, “The missionary years, 1841-1852”, M Boucher (ed.), *Livingstone letters 1843 to 1872: David Livingstone correspondence...*, pp. 17-24.

7 HH Johnston, “Livingstone as an explorer”, *Science*, New series, 37(964), 20 June 1913, p. 927.

8 R Mackenzie, *Livingstone: The truth behind the legend* (Fig Tree Publications, Chinhoyi, Zimbabwe, 2005) has gone through eight editions between 1993 and 2005; T Jeal, *Stanley: The impossible life of Africa’s greatest explorer* (Yale University Press, New Haven and London, 2007), p. 3 also refers to the interest amongst readers.

Locating water in the western parts of the subcontinent has been of vital importance to humans and animals for many centuries. With the exception of the southern and eastern coastal strip and the mountain plateau areas of the interior, the largest part of the subcontinent is semi-arid to arid. In the eighteenth century, as European travellers began exploring the interior of the subcontinent, it became evident that aridity and the scarcity of water posed a major obstacle to travel and communication. Travellers and explorers, as did livestock farmers of European descent, tended to follow the tracks of Khoikhoi pastoralists into the interior.⁹ Their touchstone was always water. And their routes were inevitably along riverbeds, be they dry or in flood.¹⁰ The historical record shows that insufficient water resources were a major obstacle to any potential European settlement in the interior.¹¹

Understanding this complex water-stressed situation, especially in past contexts, is not without its difficulties. Contemporary visitors and even permanent inhabitants of the subcontinent are seldom aware of the trying circumstances still endured by residents barely a century ago. It therefore makes good sense to take note of the way an explorer like Livingstone perceived water resources and their use in southern Africa. As a missionary he was part of a breed of intrepid frontiersmen and women who coped with daily hardships in a virtually unknown environment. He constantly had to adjust to conditions. This stood him in good stead as he ventured ever deeper into unexplored territory on a continent that even today, is noted for its extreme environmental conditions.

Objective

Working from Livingstone's *Missionary* travels and researches in South

9 L Guelke and R Shell, "Landscape of conquest: Frontier water alienation and Khoikhoi strategies of survival, 1652-1780", *Journal of Southern African Studies*, 18(4), December 1992, pp. 803-824.

10 See CJ Andersson, *Lake Ngami or explorations and discovery during four years of wandering in wilds of South-Western Africa* (Facsimile edition by C Struik, Cape Town, 1987, of the second edition, Hurst and Blackett, London, 1856), p. 118; FC Selous, *Travel and adventure in south-east Africa, being the narrative of the last eleven years spent by the author of the Zambezi and its tributaries; with an account of the colonisation of Mashunaland and the progress of the gold industry in that country* (Century Publishing and Hippocrene Books, London and New York, 1893. Reprint: Richard Clay, Bungay Suffolk, 1984), p. 15; JJ Smit, "Louis Trichardt se roete deur die Suikerboschrante", *Historia*, 4(3), September 1959, p. 192.

11 G Forbes, *Pioneer travellers of South Africa: A geographical commentary upon routes, records, observations and opinions of travellers at the Cape 1750-1800* (AA Balkema, Cape Town and Amsterdam, 1965), p. 3.

Africa¹² as a primary source, the objective is to note his observations on water while on his early travels into the African interior in the period 1849 and 1856. The book provides a great deal of information on the hydrosphere, so for the purposes of this discussion a few themes were selected, including how Livingstone perceived water; how he experienced the water realm while travelling; and his observations on indigenous customs pertaining to water.

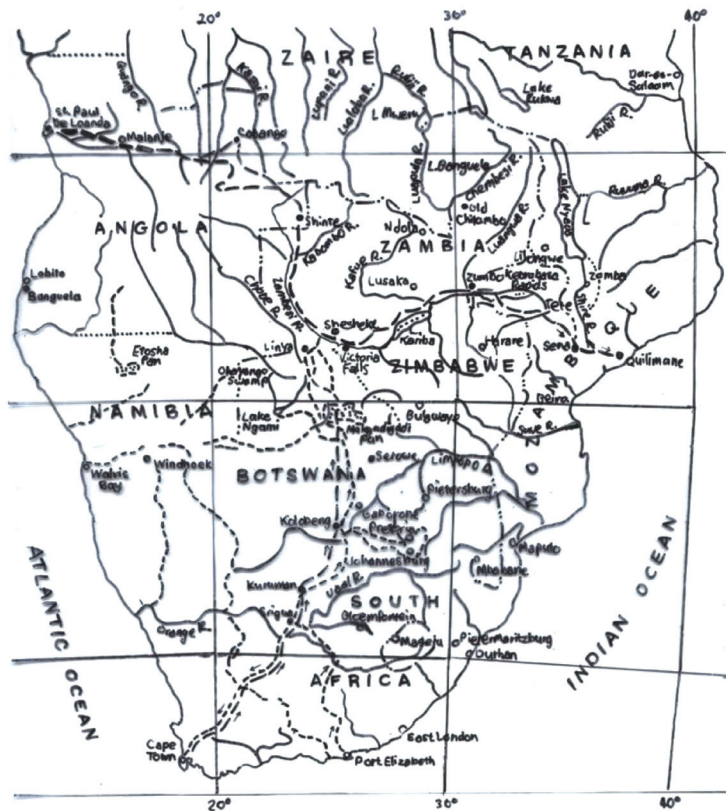


Figure 1: Outline of Livingstone's first expeditionary travels in southern Africa 1841-1855¹³

12 The first American edition was used as basic source for this study. See D Livingstone, *Missionary travels and researches in South Africa; including a sketch of sixteen years' residence in the interior of Africa, and a journey from the Cape of Good Hope to Loanda on the West Coast: thence across the continent, down the river Zambezi, to the eastern ocean* (Harper & Brothers, New York, 1858).

13 Map by G Tempelhoff. Based on maps in: R Mackenzie, *David Livingstone: the truth behind the legend*, ([1993], Eighth edition, Fig Tree Publications, Chinoyi, 2005) and M Boucher (ed.), *Livingstone letters 1843 to 1872: David Livingstone correspondence in the Brenthurst Library Johannesburg*, p. 59.

Livingstone's perceptions of water

Consciousness of water

For the greater part of his active career as a missionary of the London Missionary Society (1841-1852) Livingstone was resident on the fringes of the water-stressed Kalahari Desert in southern Africa.¹⁴ Thus, when he embarked on his travels the issue of water featured prominently in his consciousness of the environment. Travelling without water in arid regions was particularly hazardous. Livingstone's contemporaries also found this to be the case.¹⁵ He perhaps had one major advantage. Being resident for more than a decade in a region that was notorious for its lack of water, Livingstone was more familiar with such conditions and thus while travelling was better able to exercise sound judgement to address them.¹⁶

In 1852, as he set off on his expedition to Angola and then eastwards across the subcontinent to Mozambique, he encountered a wide diversity of extreme conditions. As a missionary in the Kalahari he knew what it was to travel under dry, parched conditions. Then, as he ventured into the northern swamplands and river regions of present-day Botswana and Angola, he had to contend with vast natural waterscapes.¹⁷ Little wonder then that while moving through areas with high rainfall, he was firmly under the impression that all such land was fertile.¹⁸ This perception had for a long time shaped his thinking about water. In fact, there is reason to believe that a search for suitable water supplies for his followers probably sparked Livingstone's passion for exploration.¹⁹ Macnair argues that the expansion of the Boer trekkers into the interior of South Africa forced the indigenous Tswana people into

14 For a comprehensive overview of this history, see N Jacobs, "The flowing eye: Water management in the Upper Kuruman Valley, South Africa, 1800-1962", *The Journal of African History*, 37(2), 1996, pp. 237-260.

15 G Lacy, "A century of explorations in South Africa", *Journal of the Royal African Society*, 1(2), January 1902, pp. 222-223.

16 In 1951 the geographer, Debenham, travelled in the footsteps of Livingstone to Lake Ngami a century later. He was filled with awe at the distressing circumstances a nineteenth century explorer like Livingstone would typically have experienced. Debenham noted that even in the mid-twentieth century, water supplies were still not readily available. See F Debenham, "Journey in Thirstland: in search of water in Bechuanaland", *Geographical Review*, 41(3) July 1951, p. 465.

17 See description in R Mackenzie, *Livingstone: the truth behind the legend*, p. 130.

18 DJ Siddle, "David Livingstone: A mid-Victorian field scientist", *The Geographical Journal*, 140(1) February 1974, p. 77.

19 D Livingstone – R Moffat (junior), "Kolobeng, 13 August 1847", M Boucher (ed.), *Livingstone letters 1843 to 1872: David Livingstone correspondence...*, p. 32.

the *cul de sac* of the arid parts of southern Africa.²⁰ Schapera confirms this.²¹ Livingstone's early travels were thus very likely to have been primarily aimed at finding relief for the desperate water needs of his flock. This being so, water was probably a fundamental imperative shaping the manner in which Livingstone interacted with the people and the environment around him. Scholars of Livingstone have reached consensus on three issues that exercised a heavy influence on his life, namely the atrocities of the slave trade; crossing the water-stressed Kalahari Desert; and locating the waters of Lake Ngami and the Zambezi River.²² Two of these have a direct bearing on water.

Whilst his passion for locating water resources might have been an initial inspiration to travel, towards the end of his first expedition there was already a distinct shift in his focus. By 1856 he had become eager to chart the rivers of the subcontinent (as potential routes for travellers). Although his fervour for missionary endeavour in Africa was still undiminished,²³ he was no longer contemplating water-rich regions exclusively in terms of prospective missionary settlements. Instead, for him rivers had now become potential highways for travellers into the interior of the 'dark' continent. Little wonder then that when he returned to Britain in 1856, he publicly expressed the opinion that the major accomplishment of his first expedition had been the opportunity to map the rivers more accurately than had ever been done before.²⁴

As a writer, Livingstone was always acutely aware of an overseas readership for his articles on exploration. Often his 'word pictures' of riverscapes compare them with environments that would have been familiar to his British readers. For example, he explains in *Missionary travels*, that the confluence of the Leebe and the Leeyambe rivers was large enough to accommodate vessels, such as 'Thames steamers'. In places, he explained, the river was as broad as the Thames 'in the vicinity of the London Bridge'.²⁵ The River Kasye in Angola, which he described as 'a most beautiful river' reminded him of the Clyde in Scotland.²⁶ It appears that water was a descriptive vehicle he used in an effective metaphorical discourse, to familiarise his non-African readers

20 JI Macnair (ed.) with support from R Miller, *Livingstone's travels* (JM Dent & Sons, London, 1955), p. xiii.

21 For a comprehensive exposition of this issue see I Schapera (ed.), *David Livingstone: South African papers 1849-1853* (Van Riebeeck Society, Second series no. 5, Cape Town, 1974).

22 Schapera made the first statement. Siddle then followed up on it. See DJ Siddle, "David Livingstone: a mid-Victorian field scientist", *The Geographical Journal*, 140(1), February 1974, p. 75.

23 R Mackenzie, *Livingstone: The truth behind the legend*, p. 172.

24 D Livingstone, "Explorations into the interior of Africa", *Journal of the Royal Geographical Society of London*, 27, 1857, p. 350.

25 D Livingstone, *Missionary travels and researches...*, p. 286.

26 D Livingstone, *Missionary travels and researches...*, p. 358.

with the African aquatic environment. Given the fact that water posed a serious obstacle to his travels in many parts of the subcontinent,²⁷ he also unwittingly shares his personal perceptions of water with his readers. A few examples prove the point.

Discovering waterscapes

When Livingstone began his explorations in earnest in the early 1850s, the discovery of the African interior was a popular pursuit. Rivers and lakes were an important focus. 'Discoveries' by contemporary explorers featured prominently in the journals of learned societies in the United Kingdom. Claims by JH Speke and RF Burton, to be the first 'discoverers' of the origins of the Blue and White Nile, informed a functionalist discourse on the potential uses of the Nile in the 1850s.²⁸ Livingstone was more than aware of the status accorded to debates on topics of this nature in the public realm. Water discoveries, it suggested, were an important breakthrough. He simply met the increasing demand for such information about the water treasures of the African interior. At the same time water became a conduit for satisfying his ego; it brought him fame and recognition. Being the first person of European descent to make disclosures about 'discovering' water resources and features such as Lake Ngami, the Zambezi River and the Victoria Falls, were highly newsworthy events back home in Britain. We now turn to how he saw these water features.

Lake Ngami

In the 1840s, Livingstone heard of the existence of Lake Ngami from the indigenous people to whom he ministered and he travelled northwards in the hope of finding it.²⁹ However, he was unable to reach the lake on his first attempt, presumably because he was hamstrung by lack of funds.³⁰ In 1849, he had the opportunity to try again as part of an expedition led by the hunter

27 See discussion that follows.

28 T Tvedt, *The River Nile in the age of the British: Political ecology and the quest for economic power* (IB Taurus, London and New York, 2004), pp. 60-62; M Duggard, *Into Africa: The epic adventures of Stanley & Livingstone* (Broadway Books, New York, 2003), pp. 19-28.

29 D Livingstone, *Missionary travels and researches...*, p. 52.

30 JI Macnair (ed.) with support from R Miller, *Livingstone's travels*, p. 19.

traveller, WC Oswell (1818-1893),³¹ and the trader JH Wilson. They took Livingstone along as a translator.³² The importance of this ‘discovery’ was that it created an expectation that the interior of Namibia could be opened up for trade between Walfish Bay and the interior of the subcontinent. It was argued that Lake Ngami would be crucial for establishing trading ties between European traders and local indigenous communities.³³ The news that Livingstone had discovered the lake soon spread and before long explorers, such as Galton³⁴ and Andersson³⁵ trekked into the interior from the Namibian coast, affording Livingstone his first taste of recognition.³⁶

The ‘discovery’ of Lake Ngami and the attention it focused on Livingstone became evident in contemporary published illustrations. The new technology of daguerreotype photography was in its infancy in the northern hemisphere and not yet used in southern Africa, so artists’ pictorial representations of the event were in great demand. A year after the first news on Ngami was published the printed illustrations followed. In the sketch by Alfred Ryder that was used in *Missionary travels*, Livingstone, his wife and children, along with some of their African helpers, are seen on the banks of Lake Ngami:



Figure 2: An artist's impression of Lake Ngami when the expedition reached the lake on 1 August 1849³⁷

31 JI Macnair (ed.) with support from R Miller, *Livingstone's travels*, p. 406; M Boucher (ed.), *Livingstone letters 1843 to 1872: David Livingstone correspondence...*, p. 229.

32 G Lacy, "A century of explorations in South Africa", *Journal of the Royal African Society*, 1(2), January 1902, p. 220.

33 D Livingstone, *Missionary travels and researches...*, p. 43.

34 FRS Galton, *Narrative of an explorer in tropical South Africa: Being an account of a visit to Damaraland in 1851*, (Fourth edition, Ward, Lock & Co., London, New York and Melbourne, 1891), pp. 156, 165, 192.

35 CJ Andersson, *Lake Ngami or explorations and discovery during four years of wandering in wilds of South-Western Africa* (Facsimile edition by C Struik, Cape Town, 1987, of the second edition, Hurst and Blackett, London, 1856), p. 440.

36 R Mackenzie, *Livingstone: The truth behind the legend*, pp. 109-110.

37 D Livingstone, *Missionary travels and researches...*, before p. 79.

In a later colour print, Livingstone and his party are no longer shown in the picture:



Figure 3: A painting based on the drawing by Alfred Ryder, showing the same spot in 1850³⁸



Figure 4: An 1880s illustration in which an attempt has been made to be more accurate in representing Livingstone's life as an explorer³⁹

38 BW Lloyd (ed.), *Livingstone 1873-1973* (C Struik, Cape Town, 1973), lithography by W West (John Murray, London, May 1857).

39 Anon., *The life and explorations of David Livingstone, LL.D: carefully compiled from reliable sources* (Walter Scott, London, 1887), opposite p. 72.

It is also interesting to note that in the illustration the subject matter has been conveyed in a creative and somewhat exaggerated manner. When describing his travels, Livingstone himself tended to downplay things. Writing on Lake Ngami in the early 1850s, he focused in on how difficult the journey had been. The fact that they had been unable to locate sufficient water, showed how inconsistent the lake was.⁴⁰ Of the life-sustaining water in Ngami he writes:⁴¹

The water of the lake is perfectly fresh when full, but brackish when low; and that coming down the Tamunak'le [River] we found to be so clear, cold, and soft, the higher we ascended, that the idea of melting snow was suggested to our minds.

It appears that in his mind he was already thinking eagerly ahead, contemplating the as yet hidden possibilities of distant landscapes that could unfold before European eyes. He also emphasised that Lake Ngami was shallow. He saw an indigenous boatman punting his boat across the lake in an area that was supposedly fairly deep but it was clear that the lake would never be suitable for shipping.⁴² In his view, the significance of the lake's discovery was that it would attract more traders to settle in the interior of southern Africa.⁴³

The Zambezi River

Livingstone's second major exploratory accomplishment was his description of the Zambezi River. This mighty river is 2 574 km long and has a catchment surface area of about 1,4 million km². It is the fourth longest river in Africa and the largest river on the continent to flow into the Indian Ocean.⁴⁴ Livingstone first came across the Zambezi *en route* to Angola in 1851,⁴⁵ and several years later, in 1855, he explored it up to the east coast of Mozambique. What is important is that he made a concerted effort to give a detailed description of the Zambezi – something that the Portuguese had not yet done extensively.⁴⁶

40 D Livingstone, *Missionary travels and researches...*, p. 52.

41 D Livingstone, *Missionary travels and researches...*, p. 76.

42 D Livingstone, *Missionary travels and researches...*, p. 76.

43 D Livingstone, *Missionary travels and researches...*, p. 43.

44 Anon., "Zambezi" (Available at <http://en.wikipedia.org/wiki/Zambezi> as accessed on 22 March 2007).

45 D Livingstone, *Missionary travels and researches...*, pp. 231-232.

46 D Livingstone, *Missionary travels and researches...*, p. 685. See also J Macqueen, "Remarks on Portuguese journeys in Central Africa" in *Proceedings of the Royal Geographical Society of London*, 3(6), 1858-1859, pp. 362-363.

In 1851, after travelling by *mokoro* (an indigenous canoe)⁴⁷ on the river, he wrote:⁴⁸

The river is, indeed, a magnificent one, often more than a mile broad, and adorned with many islands of from three to five miles in length. Both islands and banks are covered with forest, and most of the trees on the brink of the water send down roots from their branches like the banian, or *Ficus Indica*.

The agricultural potential of the Zambezi Valley did not escape him. He was impressed by what he saw and in his mind's eye he envisaged maize crops similar to those he had seen in Angola. In his opinion the Zambezi Valley was far better suited to producing agricultural crops such as maize, which had been introduced into the region, presumably by the Portuguese, in the sixteenth century.⁴⁹ Moreover, he judged that, the quality was equal to that which the Americans sold as seed at the Cape.⁵⁰ In his reports he expressed the opinion that the Zambezi River could also become a valuable communications and trade route.⁵¹

The Victoria Falls

From a tourism perspective one of the major accomplishments of the first expedition was Livingstone's disclosures on the Victoria Falls,⁵² the largest water falls in the world.⁵³ In the interpretation of his 'discovery' it has been suggested by both Siddle⁵⁴ and Boucher,⁵⁵ that his obvious postponement in recording his first encounter with the falls was the fact that he was initially preoccupied with promoting the navigability of the Zambezi River. This

47 D Livingstone, *Missionary travels and researches...*, pp. 231-232.

48 D Livingstone, *Missionary travels and researches...*, p. 232.

49 J McCann, "Maize and grace: history, corn and Africa's new landscapes, 1500-1999", *Comparative Studies in Society and History*, 43(2), April 2001, pp. 246-272; MP Miracle, "The introduction and spread of Maize in Africa", *The Journal of African History*, 6(1) 1965, pp. 39-55.

50 D Livingstone, *Missionary travels and researches...*, p. 632.

51 D Livingstone, "Explorations into the interior of Africa: On the people of Southern Africa, with concluding remarks", *Journal of the Royal Geographical Society of London*, 27, 1857, p. 373; D Livingstone, *Missionary travels and researches...*, pp. 709-710, 719.

52 HH Johnston, "Livingstone as an explorer", *Science*, New series, 37(964), 20 June 1913, p. 925; G Lacy, "A century of explorations in South Africa", *Journal of the Royal African Society*, 1(2), January 1902, p. 225.

53 Anon., "Zambezi" (Available at <http://en.wikipedia.org/wiki/Zambezi> as accessed on 22 March 2007).

54 DJ Siddle, "David Livingstone: A mid-Victorian field scientist", *The Geographical Journal*, 140(1), February 1974, p. 77.

55 D Livingstone – J Rodrigues Coelho do Admiral, "Tete, 25 March 1856", M Boucher (ed.), *Livingstone letters 1843 to 1872: David Livingstone correspondence...*, pp. 72, 74.

affected what is considered to be his scientific, and more particularly his geographical judgement, on matters of relevance to communication and travel. To what extent this is true, is open to conjecture. In his first reference to the falls he emphasises how difficult it was to travel in the region.⁵⁶ His thoughts on seeing the Victoria Falls for the first time clearly suggest that it was an experience that left an indelible impression. He wrote:⁵⁷

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 (about 130m) in height. 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 [sic] arms would form the bole of a large ordinary tree. Groups of graceful palms, with their feathery-formed foliage, contribute to the beauty of the islands. As a hieroglyphic, they always mean ‘far from home;’ for one can never get over their foreign aspect in picture or landscape. Trees of the oak shape and other familiar forms stand side by side with the silvery Mohonono, which in the tropics looks like the cedar of Lebanon. The dark cypress-shaped Motsouri, laden with 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 lovely enough to arrest the gaze of angels 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. Creeping to the verge, we peer down into a large rent which has been made from bank to bank of the broad Zambezi, and there we see the stream of a thousand yards in breadth suddenly compressed into a channel of fifteen or twenty.

He even made a sketch of this dramatic scene, this natural wonder of the world:

56 D Livingstone, “Explorations into the interior of Africa”, *Journal of the Royal Geographical Society of London*, 27, 1857, p. 358.

57 D Livingstone, “Explorations into the interior of Africa”, *Journal of the Royal Geographical Society of London*, 27, 1857, p. 359. In a later sketch, presumably of 1860, Livingstone added detail on the terrain. Also see R Mackenzie, *Livingstone: the truth behind the legend*. Illustration between pp. 174-175.

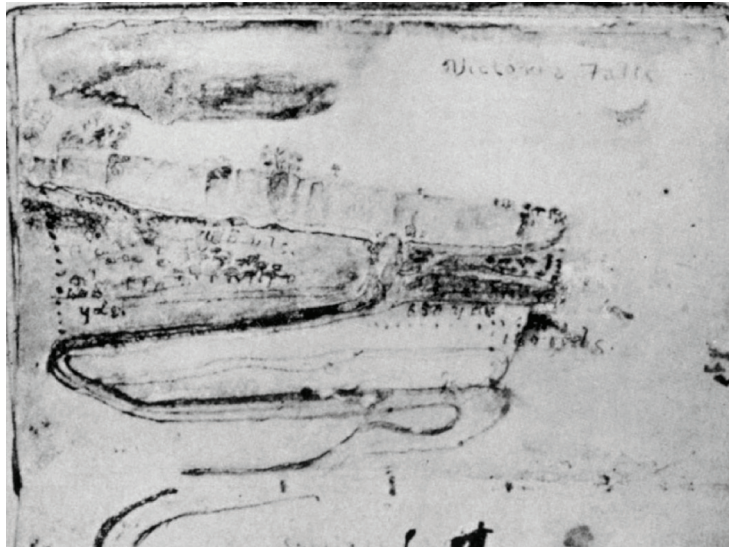


Figure 5: Livingstone's sketch of the Victoria Falls in 1855⁵⁸

By the 1860s, once the news of the falls had become widely known, the visual representation was idealised and romanticised by Thomas Baines, who accompanied Livingstone on his second journey:



Figure 6: In the early 1860s, Thomas Baines, who had accompanied Livingstone on his second expedition, completed this painting of the Victoria Falls⁵⁹

⁵⁸ Illustration, from the Rhodes-Livingstone Museum, D Livingstone, "With David Livingstone to the falls" in *African Affairs*, 54(217), October 1955, before p. 307.

⁵⁹ M Boucher (ed.), *Livingstone letters 1843 to 1872: David Livingstone correspondence...*, p. 73.

The growing spirit of British imperialism and the urge for colonial expansion in Africa is clearly evident in this stylised illustration. In some respects it is strongly reminiscent of the German Romanticism, defined so well by Caspar David Friedrich (1774-1840) at the beginning of the nineteenth century.⁶⁰

Observations on malaria

At the time of Livingstone's travels, malaria,⁶¹ a water-based disease, was still thought to be caused by 'vapours', an idea that dated back to antiquity.⁶² By the beginning of the nineteenth century malaria acted as a definitive deterrent to European penetration of the continent. This explains why the French military in the mid 1830s conducted research on the disease in Algeria. Experiments by British military physicians began with the use of quinine in 1847 when Alexander Bryson, a physician of the Royal Navy, gathered information on its prophylactic properties.⁶³ Quinine was subsequently put to good use by the British forces in West Africa.

Livingstone's early observations on malaria are of particular relevance. It is possible to form an impression of the disease and also the manner in which he treated the fever attacks. He seems to have been well informed on major developments in the science of medicine and was aware of the value of quinine. We do know that he made use of it as early as 1849 when travelling to Lake Ngami.⁶⁴ Over the next six years he developed an extensive knowledge of its practical application in regions where malaria was endemic.

Although quinine only came into its own right towards the end of the nineteenth century, the medical use of the bark of Cinchona, a Peruvian plant, was familiar to European medical practitioners by the seventeenth century. In 1742, Linnaeus named the plant in honour of the Countess d'El Chinchona of Spain. While visiting Peru she had been cured of malaria by its use and had

60 See for example his painting *Landschaft mit dem Regenbogen* (1809-10) in Folkwang Museum, Essen, Germany.

61 D Livingstone – J and A Frédoux, "Tete, 26 March 1856", M Boucher (ed.), *Livingstone letters 1843 to 1872: David Livingstone correspondence...*, p. 75.

62 AL Beeley, "Conquest of malaria: Its nature and social significance", *The Scientific Monthly*, 38(3), March 1934, p. 223.

63 PD Curtin, "The end of the 'White man's grave'? Nineteenth century mortality in West Africa", *Journal of Interdisciplinary History*, 21(1), Summer 1991, p. 74.

64 M Gelfand, "David Livingstone's management of malaria – its historical significance", BW Lloyd (ed.), *Livingstone 1873-1973* (C Struik, Cape Town, 1973), p. 21.

then brought the plant back to Europe.⁶⁵ In 1820 French chemists isolated the effective alkaloids from the raw bark, enabling them to produce quinine. At first the drug was too expensive for general use but its first commercial production began in the USA in 1823 and by the early 1830s its prophylactic use along the Mississippi River was widespread.⁶⁶

Siddle has queried why Livingstone did not investigate the causes of malaria.⁶⁷ An elementary explanation is that at no stage did he work as a medical missionary in a tropical environment where malaria would typically have been endemic. It was only when he began his travels into water-rich areas that the disease came to his attention. Even then he was apparently more interested in making observations of the effects of the dreaded tsetse fly.⁶⁸ He thus failed to make any substantial contribution on the causes of malaria, although according to Ransford, in 1853 he did indeed consider investigating the disease.⁶⁹ Mackenzie also suggests that Livingstone experimented with ways of treating malaria while he was still working as a missionary.⁷⁰ However, in view of the success he had achieved in curing the manifestations of the disease with quinine therapy, he no longer really had an interest in further research.⁷¹ Gelfand argues that the fact that Livingstone was a medical doctor was crucial to his survival under the extreme conditions where the disease was endemic.⁷² Clearly then, his personal observations on the dreaded 'fever' are an important source on how malaria was perceived and *Missionary travels* provides some interesting pointers. For example, in 1851, whilst travelling north of Kolobeng to Luanda in the Okavango region, Livingstone himself fell prey to a bout of malaria. He describes it as 'fever' and mentions that he had a stoppage of the secretions and suffered from 'a common cold'.⁷³ In 1853 he was of the opinion that malaria had its origins in the:

65 AL Beeley, "Conquest of malaria: Its nature and social significance", *The Scientific Monthly*, 38(3), March 1934, p. 224.

66 PD Curtin, "The end of the 'White man's grave'? Nineteenth century mortality in West Africa", in *Journal of Interdisciplinary History*, 21(1), Summer 1991, p. 73.

67 DJ Siddle, "David Livingstone: a mid-Victorian field scientist", *The Geographical Journal*, 140(1) February 1974, pp. 72-73, 77-78.

68 There is an extensive discussion of the dangers of the tsetse fly in *Missionary travels*. A telling indicator of Livingstone's focus on this disease is the illustration of a tsetse fly on the title page of the book.

69 O Ransford, *David Livingstone: The dark interior*, p. 78.

70 R Mackenzie, *David Livingstone: The truth behind the legend*, p. 69.

71 O Ransford, *David Livingstone: The dark interior*, pp. 78-79.

72 M Gelfand, "David Livingstone's management of malaria – its historical significance", BW Lloyd (ed.), *Livingstone 1873-1973*, pp. 20, 29.

73 D Livingstone, *Missionary travels and researches...*, p. 212.

flats inundated by the Chobe [River], as well as many other districts where pools of rain-water are now drying up... [T]hey may be supposed to be loaded with malaria and watery vapour, and many cases of fever follow.

Apart from a blockage of the nose, Livingstone writes that he experienced a 'shivering and a feeling of coldness' while his skin was at the same time warm.⁷⁴

The internal processes were all, with the exception of the kidneys and liver, stopped; the latter, in its effort to free the blood of noxious particles, often secretes enormous quantities of bile. There were pains along the spine, and frontal headache.

Livingstone discussed malaria with traditional healers of the Molokolo community, but they were clearly unable to offer effective solutions. He then resorted to sweating it out with doses of quinine. He was convinced that:

Purgatives, general bleedings, or indeed any violent remedies, are injurious; and the appearance of a herpetic eruption near the mouth is regarded as an evidence that no internal organ is in danger.

Moreover, the bouts of depression that accompany malaria were also noted; he added some stern advice:⁷⁵

There is a good deal in not 'giving in' to this disease. He who is low-spirited, and apt to despond at every attack, will die sooner than the man who is not of such a melancholic nature.

While travelling in the eastern part of the Okavango swamps Livingstone was informed that once the annual flooding of the swamps had passed, fever was particularly severe in the region. He thought part of the reason for this was the rotting weeds and grasses once the water had subsided.⁷⁶

In 1853, after he had passed through the Zambezi River area, Livingstone sent three of the men in his party back south to Kuruman because they were intermittently suffering from fever and he was unable to expect much work from them. He replaced them with 'Zambesian' assistants whom he had hired in the north.⁷⁷ They seemed to be more resilient to the disease. At the time, he himself was also suffering from the effects of malaria:⁷⁸

74 D Livingstone, *Missionary travels and researches...*, p. 212.

75 D Livingstone, *Missionary travels and researches...*, p. 213.

76 D Livingstone, *Missionary travels and researches...*, pp. 240-241.

77 D Livingstone, *Missionary travels and researches...*, p. 248.

78 D Livingstone, *Missionary travels and researches...*, pp. 248-249.

The fever had caused considerable weakness in my own frame, and a strange giddiness when I looked up suddenly to any celestial object, for every thing seemed to rush to the left, and if I did not catch hold of some object, I fell heavily on the ground: something resembling a gush of bile along the duct from the liver caused the same fit to occur at night, whenever I turned suddenly around.

About midway through *Missionary travels*, writing at the time of his journey through the Barotse Valley, Livingstone notes that he had once again taken ill with fever. As a scientist, he tried to shift his personal condition into the background:⁷⁹

[A]s I am already tired of quoting my fevers, and never liked to read travels myself where much was said about the illnesses of the traveller, I shall henceforth endeavour to say little about them.

Fortunately he was unable to keep to his resolve, and recorded more than 30 attacks of recurring fever, clearly associated with malaria.

As they travelled through forest and swamplands on their way to Luanda, Livingstone and some of his travelling companions suffered frequent bouts of fever.⁸⁰ By March 1854 he had been weakened to the extent that he even fell from the ox he had been riding:⁸¹

Th[e] last attack of fever was so obstinate that it reduced me almost to a skeleton. The blanket which I used as a saddle on the back of the ox, being frequently wet, remained so beneath me even in the hot sun, and, aided by the heat of the ox, caused extensive abrasion of the skin, which was continuously healing and getting sore again. To this inconvenience was now added the chafing of my projecting bones on the hard bed.

By the time he reached Luanda, his health had deteriorated substantially. At one stage it was thought that it would be best to transfer him via St. Helena back to the Cape. But the explorer in him stubbornly declined the offer, pointing to the fact that he had a company of fellow-travellers to lead and that it was necessary to open up a path from the interior to the coast.⁸² Livingstone also described how malaria affected the members of his expedition; while the expeditionary group stayed over in Luanda, there were two members who suffered from persistent bouts of fever. A third even experienced mania and

79 D Livingstone, *Missionary travels and researches...*, p. 269.

80 D Livingstone, *Missionary travels and researches...*, pp. 349, 350, 371-372, 375-376, 378, 385.

81 D Livingstone, *Missionary travels and researches...*, p. 378.

82 D Livingstone, *Missionary travels and researches...*, pp. 422-423.

had to be restrained by fellow-members.⁸³ Livingstone was also in a position to see how malaria affected a colonial household when the master of the house was suffering from bouts of fever. While in Luanda, he stayed with a Mr Cantor, a local Portuguese colonial official. When this man suffered from bouts of fever his servants constantly pilfered the household supplies, especially sugar. Livingstone noted:⁸⁴

Probably the slaves thought that, as both they and the luxuries were the master's property, there was no good reason why they should be kept apart.

In 1855 when he was travelling in the territory of the Balonda, in search of Lake Dilolo, he was so ill with fever that he was vomiting blood and had to terminate the excursion.⁸⁵ Within the next year, while he was travelling along the east coast of Africa in Mozambique, he once again contracted fever. He became worse because he had to travel in the hot sun and through very long grass. He had a remarkably high pulse rate and felt that his blood was throbbing in his temples. His stomach also began to swell.⁸⁶ In the same year he visited Kilimane and had the opportunity to observe how malaria affected the crew of a ship from Hamburg. Their ship had sunk when they came in across the bar at Kilimane:

The men were much more regular in their habits than English sailors, so I had an opportunity of observing the fever acting as a slow poison. They felt 'out of sorts'... only, but gradually became pale and weaker, till at last they sank more like oxen bitten by tsetse than any disease I ever saw. The captain, a strong, robust young man, remained in perfect health for about three months but was at last knocked down suddenly and made as helpless as a child by this terrible disease. He had imbibed a foolish prejudice against quinine, our sheet-anchor in the complaint.

Livingstone was convinced that quinine was the only cure for malaria:⁸⁷

Quinine is invaluable in fever, and never produces any unpleasant effects in any stage of the disease, if exhibited in combination with an aperient.

Then Livingstone confided in his readers:⁸⁸

The captain was saved by it, without his knowledge, and I was thankful that

83 D Livingstone, *Missionary travels and researches...*, after pp. 442-443.

84 D Livingstone, *Missionary travels and researches...*, after p. 440.

85 D Livingstone, "Explorations into the interior of Africa", *Journal of the Royal Geographical Society of London*, 27, 1857, p. 352.

86 D Livingstone, *Missionary travels and researches...*, pp. 715-716.

87 D Livingstone, *Missionary travels and researches...*, p. 726.

88 D Livingstone, *Missionary travels and researches...*, p. 726.

the mode of treatment, so efficacious among natives, promised fair among Europeans.

There is also evidence that he put indigenous remedies to the test for treating malaria,⁸⁹ but it seems he was critical of these because they were unable to work as efficiently as the quinine.

Livingstone's expedition and the use of water

Size of the expedition

By modern-day standards Livingstone was at the helm of a large expedition. It appears that the average membership varied between 70 and about 150 or more. In 1852, when they were travelling on the Zambezi River it was necessary to procure 33 canoes (*makoros*) for 160 people.⁹⁰ Three years later, in 1855, when they were carrying elephant tusks to the Mozambican coast, there might have been as many as 150 men in the group,⁹¹ and in the vicinity of the Victoria Falls the expeditionary force numbered more than 200 people.⁹²



Figure 7: An artist's impression of how Livingstone travelled by canoe on the rivers in Angola in 1854. It must have been a remarkable sight. More than 30 mokoros were used on occasion⁹³

89 M Gelfand, "David Livingstone's management of malaria – its historical significance", BW Lloyd (ed.), *Livingstone 1873-1973*, p. 23; M Boucher, "The missionary years, 1841-1852", M Boucher (ed.), *Livingstone letters 1843 to 1872: David Livingstone correspondence...*, p. 52; D Livingstone – E Gabriel, "Tete, 4 April 1856", in the same source, p. 81.

90 D Livingstone, *Missionary travels and researches...*, pp. 231-232.

91 D Livingstone, *Missionary travels and researches...*, pp. 358, 565, 684; D Livingstone, "Explorations into the interior of Africa: On the people of Southern Africa, with concluding remarks", *Journal of the Royal Geographical Society of London*, 27, 1857, p. 373.

92 D Livingstone, "Explorations into the interior of Africa", *Journal of the Royal Geographical Society of London*, 27, 1857, p. 358.

93 D Livingstone, *Missionary travels and researches...*, after p. 359.

Distances

The daily distances covered by Livingstone's expedition varied. In the desert they would trek less than 10 km a day.⁹⁴ If they travelled close to rivers and through swamplands the water made progress slow and exhausted the men. Livingstone writes:⁹⁵

The continual splashing of the oxen keeps the feet of the rider constantly wet, and my men complain of the perpetual moisture of the paths by which we have travelled as softening their horny soles.

In the Zambezi Valley Livingstone's expedition covered between 16 and 18 km per day. While they were moving forward many of the participants wandered away to collect honey in the veld. Livingstone, more disciplined, refrained from doing so and consequently was able to move far ahead of the rest of his entourage. The distance to be travelled was by no means the worst part of travelling. Having to persevere and march ahead every day was particularly fatiguing.⁹⁶

Securing supplies from locals

At times Livingstone would avoid passing nearby the villages,⁹⁷ but this was not the case when they were in need of supplies. In 1855, writing a report of his travels to the Royal Geographical Society of London, Livingstone notes that there were some routes from the Angolan interior to central southern Africa that were particularly arid and dry. So much so that travellers had to take along their own supplies of water. However, he and his expedition moved into the interior at a more southerly point and carrying water was unnecessary – it was freely available at the villages where they spent the nights, or at streams and rivulets that they passed.⁹⁸

Water quality

More often than not they would refrain from taking special precautions to

94 D Livingstone, *Missionary travels and researches...*, p. 69.

95 D Livingstone, *Missionary travels and researches...*, p. 333.

96 D Livingstone, *Missionary travels and researches...*, p. 658.

97 D Livingstone, *Missionary travels and researches...*, p. 658.

98 D Livingstone, "Explorations into the interior of Africa", *Journal of the Royal Geographical Society of London*, 27, 1857, p. 349.

ensure that their drinking water supplies were of good quality. They could not maintain a strict routine of constantly cleaning the water:⁹⁹

One does not stay on these occasions to prepare water with alum nor anything else, but drinks any amount without fear.

Inconsistency of water supplies

In the Kalahari expedition members were constantly on the look-out for water supplies. For example, their auditory senses were put to the test when they relied on the croak of a desert frog, known in the vernacular as *Matlamétlo*, and described by Livingstone as *Pyxicephalus adspersus*, to locate water.¹⁰⁰ At the time of his first visit to Lake Ngami the expeditionary group stopped over at the Serotli fountain in the Kalahari. This had always been a reliable water source. However, while on his expedition in the early 1850s, the water at Serotli was on the decline and they had to rely on the locals to help them locate drinkable water. With considerable effort, deep pits were dug and the water was then carefully extracted. It required considerable skill to access the water. Livingstone explains:

Our guides were ... earnest in their injunctions to us not to break through the hard stratum of sand at the bottom, because they knew, if it were broken through, 'the water would go away'.

After a few days of nursing the water source, it gradually increased, making it possible to water a substantial number of men, as well as the oxen. It was water sources of this nature, wrote Livingstone, that the Bakalahari used when they urgently needed water.¹⁰¹

Communication in areas with a great deal of water

One would assume that Livingstone's expedition was able to travel with greater ease in parts of the country where water was more readily available. But strangely, this does not seem to have been the case.¹⁰² In 1853 the expedition

99 D Livingstone, *Missionary travels and researches...*, pp. 658-659.

100 D Livingstone, *Missionary travels and researches...*, pp. 48-49. There was no truth in the idea that this would lead them to water.

101 D Livingstone, *Missionary travels and researches...*, p. 63.

102 Also see R Mackenzie, *David Livingstone: The truth behind the legend*, p. 130.

reached the vicinity of the swamplands of the Okavango.¹⁰³ Deep water furrows and tall grasses, together with the ever-present danger of hippopotami, posed many challenges. In an effort to determine their location, members of the expedition frequently had to climb high trees to see around them.¹⁰⁴ Elements in the environment also militated against their senses:¹⁰⁵

A peculiar kind of lichen, which grows on the surface of the soil, becomes detached and floats on the water, giving out a very disagreeable odor, like sulphurated hydrogen, in some of these stagnant waters.

By November 1853 he and the members of his expedition had become accustomed to travelling in water-rich environments. By this time he had secured the services of a number of Barotse boatmen who were familiar with travelling in their canoes on the Chobe River. They had replaced some of the people who had been part of the expedition when it left Kuruman. Accustomed to the arid conditions of the Kalahari, they had frequently suffered from bouts of malaria and were not as able as the Barotse in the water-rich environment.¹⁰⁶

On a typical day Livingstone would rise at 05:00 and coffee would be made for him. The rest of the company would then also drink coffee – a beverage the indigenous people grew very fond of. The canoes would be loaded and for two hours the group would then row down the river. According to Livingstone this was the most pleasant time of the day to travel.¹⁰⁷ To pass the time the Barotse boatmen would tease and scold each other in jocular fashion. By about 11:00 they would land the *makoros* and enjoy some food. This was usually part of the meat dish of the previous evening. Otherwise they would eat biscuits and honey, taken with water. At 12:00 they would once again take to the canoes, but this time under the shelter of an umbrella. As Livingstone puts it, also giving insight on his weak state of health:

The heat is oppressive, and, being weak from the last attack of fever, I can not land and keep the camp supplied with flesh.

The men on the boat would sweat profusely in the heat of the day. There would have to be fairly frequent halts because the boatmen became weary. About two hours before dusk, by which time everyone was exhausted, they

103 D Livingstone, *Missionary travels and researches...*, pp. 191-192.

104 D Livingstone, *Missionary travels and researches...*, pp. 193-194.

105 D Livingstone, *Missionary travels and researches...*, p. 192.

106 D Livingstone, *Missionary travels and researches...*, pp. 248, 265-266.

107 D Livingstone, *Missionary travels and researches...*, p. 265.

would draw up on the banks of the river to prepare for the night. Biscuits and honey, along with coffee, would again be served. The men would also eat bread made from a course meal or sorghum. If they had been fortunate enough to hunt down an animal in the course of the day meat would be prepared, usually by cutting it up into long strips and boiling it in a pot.¹⁰⁸

By January 1854 Livingstone and his company were travelling in the vicinity of the Leebe River, a region where there are frequent downpours of heavy rain. He often noted in his description of the landscape that he was unable to make geographical observations because it had been raining incessantly. These conditions also made it extremely difficult to travel. Everything became moist. For example, it became impossible to keep the powder in the gunnipples dry.¹⁰⁹ In the early months of 1854 the expedition was in the land of the Balonda, to the north of the Zambezi River, and passed through a dense, virtually impenetrable forest where they had to use an axe to cut their way through the vegetation. To make matters worse the forest was literally flooded. The incessant rain meant that those wearing clothing were literally soaked. Livingstone became aware of the smell of sulphurated hydrogen. He soon became ill:¹¹⁰

I had attacks of fever of the intermittent type again and again, in consequence of repeated drenchings in these unhealthy spots.

Gradually he became more accustomed to the rain. Livingstone writes:¹¹¹

There was a considerable pleasure, in spite of rain and fever, in this new scenery. The deep gloom contrasted strongly with the shadeless glare of the Kalahari, which had left an indelible impression on my memory. Though drenched day by day at this time, and for months afterward, it was long before I could believe that we were getting too much of a good thing. Nor could I look at water being thrown away without a slight, quick impression flitting across the mind that we were guilty of wasting it. Every now and then we emerged from the deep gloom into a pretty little valley, having a damp portion in the middle; which, though now filled with water, at other times contains moisture enough for wells only. These wells have shades put over them in the form of little huts.

108 D Livingstone, *Missionary travels and researches...*, p. 266.

109 D Livingstone, *Missionary travels and researches...*, p. 302.

110 D Livingstone, *Missionary travels and researches...*, p. 305.

111 D Livingstone, *Missionary travels and researches...*, pp. 307-308.

Later, the firearms of the members of the expedition began to rust despite being oiled every evening.¹¹²

Indigenous culture and the hydrosphere

Livingstone was an acute observer of the way indigenous communities interacted with the water realm. He did not explore Africa on his own. He was always in the company of indigenous people who informed him on matters of local custom.¹¹³ At the same time he was a man of his times, and tended to view indigenous societies from a particular racial perspective. But then too, he was well aware of how the physical environment influenced human industry. For example, he wrote of the people of the hills and those who had settled on the plains.¹¹⁴ He also discussed river people and the way they interacted with water.

River people

In 1853 Livingstone made contact with the Barotse, typical river people living on the banks of the Zambezi River, close to the Gonye Falls. Their settlements were literally built on mounds. He was told that this tradition was introduced by a former ruler, Santuru. The region became flooded annually and the area then took on the appearance of a lake landscape with the villages standing out on the mounds.¹¹⁵ This simple technological strategy enabled them to build their dwellings above the average floodline of the river. These indigenous residents also made adjustments to the natural botanical environment. In the villages, trees had been transplanted to provide shade, because there were not many in the valley. The settlements were small:¹¹⁶

There are no large towns, the mounds on which the towns and villages are built being all small, and the people ... [need] to live apart on account of their cattle.

112 D Livingstone, *Missionary travels and researches...*, p. 310.

113 JH Robertson and R Bradley, "New paradigm: the African early Iron Age without Bantu migrations", *History in Africa*, 27, 2000, p. 291.

114 D Livingstone, "Explorations into the interior of Africa: on the people of Southern Africa, with concluding remarks", *Journal of the Royal Geographical Society of London*, 27, 1857, p. 368.

115 D Livingstone, *Missionary travels and researches...*, p. 234.

116 D Livingstone, *Missionary travels and researches...*, p. 235.

The local capital of the Barotse was Naliele, where Santuru's grain store was situated. His own residence was about 500m south of this settlement. When Livingstone visited Naliele in 1851, the ruler's residence no longer existed. The site then formed part of the river's base and only a small mound was still visible. A similar fate befell the village of Linangelo which was also situated on the left bank of the river. This led Livingstone to observe:¹¹⁷

No great rise of the river is required to submerge the whole valley; a rise of ten feet above the present low-water mark would reach the highest point it ever attains, and two or three feet more would deluge all the villages. This never happens, though the water sometimes comes so near the foundations of the huts that the people can not move outside the walls of reeds that encircle their villages.

Livingstone also noted that the people resident in the river regions tended to show some resilience to malaria. Those who did not were forced to move away or be decimated by the killer disease. It appears to have influenced agricultural communities more than mobile groups, like the San and Khoi pastoralists.¹¹⁸

River people in the Kalahari

Livingstone also comments on the river people of the Kalahari. The Bayeiye or Bakoba people lived on the banks of the Zouga River (also known as the Botletle River) that passes through the Kalahari Desert. They lived on small islets that were covered with reeds. They cultivated gardens, reared goats and conducted considerable fishing and hunting activities. According to him they were fairly muscular people. Livingstone describes them as follows:¹¹⁹

Wherever you meet them they are always the same. They are the Quakers of the body politic in Africa. They never fought with any one, but invariably submitted to whoever conquered the lands adjacent to their rivers.

For him these people were different from Sekote and his followers who lived under virtually identical circumstances and ornamented their villages with human skulls.¹²⁰

117 D Livingstone, *Missionary travels and researches...*, p. 236.

118 M Gelfand, "David Livingstone's management of malaria – its historical significance," BW Lloyd (ed.), *Livingstone 1873-1973*, p. 23; JH Robertson and R Bradley, "New paradigm: the African early Iron Age without Bantu migrations", *History in Africa*, 27, 2000, pp. 297-298, 315-317.

119 D Livingstone, "Explorations into the interior of Africa: On the people of Southern Africa, with concluding remarks", *Journal of the Royal Geographical Society of London*, 27, 1857, p. 369.

120 D Livingstone, "Explorations into the interior of Africa: On the people of Southern Africa...", *Journal of the Royal Geographical Society of London*, 27, 1857, p. 370.

People of the Kalahari plains

The people who lived on the desert plains, the Bakalahari were perhaps – as far as water management is concerned – Livingstone’s most important subject of investigation. They chose to steer clear of conflict with ‘foreign’ as well as local tribal communities and settled at sites a long distance from water resources. Livingstone writes:

When they wish to draw water for use, the women come with twenty or thirty of their water-vessels in a bag or net on their backs.

The Bakalahari used ostrich eggs as water vessels. The egg shell had a hole at the one end, about the size of a person’s finger. Water was carefully extracted from what appeared to be moist sand. Livingstone describes the technique as follows:

The women tie a bunch of grass to one end of a reed about two feet long, and insert it in a hole dug as deep as the arm will reach; then ram down the wet sand firmly round it. Applying the mouth to the free end of the reed, they form a vacuum in the grass beneath, in which the water collects, and in a short time rises to the mouth. An egg-shell is placed on the ground alongside the reed, some inches below the mouth of the sucker. A straw guides the water into the hole of the vessel, as she draws mouthful after mouthful from below. The water is made to pass along the outside not through the straw. If any one will attempt to squirt water into a bottle placed some distance below his mouth, he will soon perceive the Bushwomen’s contrivance for giving the stream direction by means of a straw. The whole stock of water is thus passed through the woman’s mouth as a pump, and, when taken home, is carefully buried.

On occasion, Livingstone visited Bakalahari villages where there was no indication at all of any available water. Had he been arrogant, he would not have been given any access at all to the community’s valuable water supplies. However, if he waited patiently, he found that water would be made available to him once the people were certain of his sincerity.¹²¹ In 1853 he visited a sucking site some 92 km north of Kanne where many San had congregated with egg-shells and reeds. In this region there was no other water available and livestock had great difficulty in coping with thirst.¹²²

121 D Livingstone, *Missionary travels and researches...*, p. 59.

122 D Livingstone, *Missionary travels and researches...*, p. 171.



Figure 8: Bakalahari women collecting valuable water from a pool in the desert¹²³



Figure 9: A Khoikhoi female returning from a waterhole with ostrich eggshells filled with water. At the camp the males have brought in a hartebeest from the hunt

Livingstone informs us that typical family industries manufactured salt in marshes along the Leebe River, north of the Zambezi River. A man, his two wives and their children would remove the coarse reeds and the stalks of the *tsitla* plant that grew in the brackish marshlands. These would then be burnt. Livingstone describes the production process:¹²⁴

They make a funnel of branches of trees, and line it with grass rope, twisted round until it is, as it were, a beehive-roof inverted. The ashes are put into

123 D Livingstone, *Missionary travels and researches...*, before p. 59.

124 D Livingstone, *Missionary travels and researches...*, p. 292.

water, in a calabash, and then it is allowed to percolate through the small hole in the bottom and through the grass. When this water is evaporated in the sun, it yields sufficient salt to form a relish with food.

Fishing

In the Barotse Valley the annual flood made a sizeable amount of fish available. Livingstone noted in 1853 that the *mosala* (*Clarius capensis* and *Glanis sularis*) as well as the mullet (*Mugil africanus*) were present in large numbers in the Barotse Valley at these times. The indigenous people would catch them when the water began to recede. The fish were then cut up and dried in the sun. There was far more fish available than the people could consume which meant that it tended to rot, causing a dreadful smell.¹²⁵

Along the banks of the Lokalueje River as it flows into the Leebe, the local villagers frequently caught large quantities of fish. The omnivorous fish, *Glanis siluris*, also known as the *mosala* were available in prolific numbers on the flood plains. The Balonda in the region would catch these fish as they headed back to the river in the aftermath of the floods. They constructed earth dykes and hedges across the receding waterways. They also planted creels to trap the fish. The catch was then collected and smoke-dried. The smoked fish, according to Livingstone, made quite a tasty meal.

The Balonde also made weirs of reed mats sewn together. Between the mats there was a mere half inch of space. Creels were placed in the spaces between the mats.¹²⁶ In areas where the flood plains were not flowing, fish traps, similar to the common mouse traps, were used, usually made of reeds and other suitable vegetation. Food was placed on the inside the traps to lure the fish to enter.¹²⁷ Fish were also caught using a hook of iron without a barb. The point was bent in such a manner that it was impossible for the fish to retract. Nets were not commonly used in the region, as was the case in the vicinity of the Zouga and the Leeambvye rivers. Some communities planted the bruised leaves of a shrub beside their villages in the water plains. These were said to have the power to kill large numbers of fish. Livingstone does not venture an explanation on how these fish were affected by the bruised leaves.¹²⁸

125 D Livingstone, *Missionary travels and researches...*, p. 282.

126 D Livingstone, *Missionary travels and researches...*, p. 336.

127 D Livingstone, *Missionary travels and researches...*, pp. 336-337.

128 D Livingstone, *Missionary travels and researches...*, p. 337.

Water and tradition

Livingstone took particular note of religious and traditional rites in respect of the water realm. For example, in January 1854, while amongst the Balonde, north of the Zambezi River, in a region with a very high rainfall, Livingstone attended a traditional ceremony to drive off the rain.¹²⁹ On many occasions in his career as a missionary he had been aware of the indigenous tradition of rainmaking,¹³⁰ so he had a very specific bias in respect of indigenous religious practices. Nevertheless, he was objective enough to include details of these ceremonies in his writings, making it possible for contemporary readers to form an impression of the customs and traditions of indigenous peoples. In the Zambezi Valley in 1856 he encountered a local ruler, Nyampungo, a rainmaker of repute. His powers were so respected that other communities also made use of his services. Nyampungo suffered from the disease locally called Sesenda – a condition similar to leprosy.¹³¹ On another occasion Livingstone met a community worshipping the figure of an “alligator” (crocodile) made of clay which was said to have healing powers. Livingstone describes the treatment:

It is formed of grass, plastered over with soft clay; two cowrie-shells are inserted as eyes, and numbers of the bristles from the tail of an elephant are struck in about the neck. It is called a lion, though, if one were not told so, he would conclude it to be an alligator.

At times when sickness prevailed in the community this figure was placed in a shed and the Balonda prayed to it all night, beating drums nearby.¹³²

Conclusion

Livingstone provides in his writings a valuable impression of the water realm in southern Africa at a time when colonial influence in the region was still peripheral. His observations later informed colonial planners on what to expect in areas of expansion. His observations are lucid and provide an essential subscript to our comprehension of conditions of travel, coping with water-related disease and the manner in which indigenous society interacted

129 D Livingstone, *Missionary travels and researches...*, p. 304.

130 JI Macnair, *Livingstone the liberator: a study of a dynamic personality* (Collins, London and Glasgow, c. 1940), pp. 96-100.

131 D Livingstone, *Missionary travels and researches...*, pp. 648-649.

132 D Livingstone, *Missionary travels and researches...*, p. 304.

with water. *Missionary travels*, informs us indirectly on aspects of the water realm, perceived in the mid 1800s by a product of Victorian culture. In Africa, under the most difficult of conditions, Livingstone lived out the customs of his own culture and society – for example, in respect of personal hygiene and the use of purified water. The manner in which he wrote of his ‘discoveries’ of the natural water features of Africa to a northern hemisphere society, informs us on the way in which ‘darkest’ Africa, and its water was seen in time to come. His most important message was that although in Africa there were similarities with Western culture and practices, there were also a number of important differences. We are today more than aware that there is a distinct variation in the nature of water supplies in Western Europe to those in the relatively water-stressed parts of southern Africa. In the context of a subtext, Livingstone informed a growing public awareness of imperial ambition that it was high time to open up Africa. After all, he was addressing a resource-hungry industrialising society, confident about the possibilities of human progress. In the larger picture of things, water and its availability, was destined to play a pivotal role in British territorial expansion, development and political dominance.

Finally, it is pertinent that Livingstone was not an anthropologist; nor was he a hydrologist. Precisely because of these assumed shortcomings, we are able to learn from the observations he made on his travels. His ‘word-pictures’ inform our impressions of indigenous African culture and its interaction with the water realm of the subcontinent.