

Matope, and consequently of leaving my proper work for a time. I arrived here on the 30th of July, and heard of the death of Mrs. Duncan and Mrs. Nichol of Blantyre. They will be much missed. Before we left Karonga, Monteith had forwarded nearly the whole of the second consignment of the London Missionary Society's steamer on to Maliwanda, so I trust there will be no delay there. Mr. Filloir and Mr. Roxburgh go north with me as soon as we can get ready, and they will look after the transport.

J. S.

*The River Congo, from its Mouth to Bólóbó; with Notes on the Physical Geography, Natural History, Resources, and Political Aspect of the Congo Basin.* By H. H. JOHNSTON.

(Read at the Evening Meeting, November 12th, 1883.)

Map, p. 752.

SHORTLY after my return from the Congo in the month of August last, I was invited to read before the Geographical Section of the British Association a short account of my personal experiences during my journey. This paper has already been published in the October 'Proceedings' of the Royal Geographical Society, and it may be regarded as a prelude to the further and more detailed description of this country which I have now the honour to lay before you.

On starting to reach the Congo, as I did, from São Paulo de Loanda, journeying along the hundred and fifty miles of coast that separate the mouth of that river from the capital of Angola, you must necessarily pass rather varied phases of African scenery. Between Loanda and Ambriz, strange to say, although the country is nominally owned by the Portuguese, it is almost impossible for a European to travel by land, owing to the animosity of the natives, but save for the pretty river Dande there is little to be seen of much interest. Ambriz itself is a remarkably ugly place, but possesses great materials for prosperity as it has been made a fairly safe landing-place by the Portuguese, in the midst of a singularly dangerous coast, and is moreover the great outlet for the coffee trade of the interior. A few miles north of Ambriz recognised Portuguese dominion ceases, the river Loge being the boundary, and the next European settlement, Kinsembo, is independent and cosmopolitan. The scenery, where no river-course intersects the land, is depressing, the chief vegetation that spots the arid soil being ugly euphorbias and stunted baobabs, except along the sea-coast, where an occasional Borassus palm gives a promise of better things. Some ten miles off in the interior the landscapes are so many earthly paradises, with their massive groves and verdant slopes and prosperous plantations, but here near the

sea it is barren, grey, desolate and deserted, like so much of the South-west African coast. So on, past Musséra and other trading settlements until Ambrizete is reached. Here there is something more hopefully alive in nature. The scenery at about a mile from the coast is beautiful and park-like, and the meadows down near the Ambrizete river are studded with many wild flowers. The baobabs in the distance seem to be fine stout beech trees, growing in an English park, and their leaves are tender and green, having just budded out under the October rains. Even the euphorbias are handsomer and glossier in this more favoured region, and have lost that dingy colour and distorted form which characterise them on the arid Angolan coast.

As Ambriz is the great coffee port, so Ambrizete is the outlet for the ivory trade, and has been so for many years. As I shall point out farther on, the ivory road starts from Stanley Pool, passes through São Salvador and debouches at Ambrizete. From Ambrizete the pineapple has been introduced along the trade routes, far into the interior of the southern Congo region, and it is probable that limes and oranges, maize and sugar-cane originally started from here or from some neighbouring point along the coast, where they were introduced by the Portuguese, and spread thence rapidly into the interior along the arterial trade paths, finding it easy to overrun these hitherto poorly-fed countries. The natives of Ambrizete are very turbulent and decidedly opposed to any idea of future annexation or protectorate by a European power. For this reason no white man is allowed to penetrate more than a few miles into the interior, and scientific explorations are indistinguishable in their eyes from political reconnaissances. In this way the region lying between São Salvador and the coast, vaguely named Ngoje, remains almost unknown to Europeans.

Beyond Ambrizete are many smaller settlements for trade, the last of which, before the Congo is reached, being Cabeça da Cobra, in the country of Sonyo, a region once subjected to considerable Portuguese influence. This little place seemed to my starved eyes a marvel of tropical scenery, for here after many hundred miles of desert or arid plateau the sterile influences of the south coast are vanquished, and a rich, beautiful vegetation grows down to the very waves. There was a stretch of low-lying land about a mile or less in breadth immediately next the sea, which was overgrown with dense bush, and was in fact a most beautiful natural garden. There were groups of umbrageous trees (some of them handsome species of papilionaceæ, whose lilac-coloured blossoms covered the ground beneath) offering a most welcome and unaccustomed shade, where seated amidst a trellis-work of creepers, on a dry carpet of fallen leaves and flowers, you could dreamily inhale the perfume which the ardent sun drew from the surrounding jasmine bushes. In the background, behind all this greenery, the land abruptly

risers and resembles a row of ancient cliffs, from which the sea has retreated, and whence the rain has washed down the loose surface soil that nourishes the verdant garden below. Their summits are harsh and barren from the constant denudation, but half a mile farther on vegetation begins again.

The natives in the neighbourhood of *Cabeça da Cobra* are of rather a low type and very black; they belong to the *Mushirongos*, a tribe which reaches to the south bank of the Congo. The interior of their country is but little known.

Some time before we reach the Congo, the red cliffs which are such a constant feature in the South-west African coast sink lower and lower, and give place to mighty mangrove swamps of considerable extent. Then the sea becomes coloured by the sediment of the river, and the contrast is sharply marked where the cloudy river-water meets the clear sea. The colour of the Congo water is dark brownish-red, and that of the sea transparent green; the temperature of the two waters is also different, that of the Congo registering 83° Fahrenheit, and the sea-water 74°, a difference of nine degrees.

The mouth of the Congo is comparatively unimposing for so great a river, and is very simple and undivided when compared with the great deltas of the Nile, the Niger, and the Zambesi. In fact this is one of the first impressions which gives an air of "newness" to the river, and suggests that its present outlet into the Atlantic Ocean may not be of very ancient date. That the Congo in many directions is trying to force its way to the sea by means of other branches, I am inclined to believe, for many of its so-called "creeks" between Boma and the sea, though at present remaining blind alleys, yet have gained in length in the memory of the European settlers on the Lower Congo, and it is the opinion of some who know the country that the river may ultimately force a way to the sea at Kabinda by means of a branch outlet from Boma.

The aspect of the mouth of the Congo with its two opposite points of *Padrão* and *Banana* is rather curious. They seem like the last fragments of the ancient coast-line through which the river has broken. *Point Padrão* is a spit of marshy land covered with splendid forest and fringed with breakwaters of mangrove and clumps of beautiful *Borassus* palms. *Banana Point* is a little peninsula of sand which without the intervention of man would have been washed away by the river current on one side and the waves of the Atlantic on the other. On this narrow strip of land where space is as valuable as in some civilised cities, there are three different factories, of which that belonging to the Dutch Company is by far the largest and most important. On the ground occupied by this establishment many handsome palms are planted, to aid with their roots in keeping the loose soil together. Where the peninsula is joined to the mainland it is all over-

grown with giant mangroves and is very marshy in character, being to all intents and purposes an island, for it is impossible to reach the high ground beyond otherwise than by water. On the inner side of the little promontory is a deep and capacious inlet of the Congo, where there is room for a whole navy to be moored. Here ships of the greatest size can be anchored within fifty yards of the shore.

Beyond *Banana*, northwards, following the coast-line, there is a great stretch of mangrove, and then the land again begins to rise into low red cliffs at *Muanda*, where there is a trading station. Thence the road leads on to *Vista*, another settlement of Europeans, where there is an excellent and healthy climate, and where immense herds of oxen are bred for the sustenance of the whites on the Lower Congo. Beyond *Vista* the path or native road goes on to *Kabinda*, *Landana* and *Loango*, and there is a regular system of human portage from village to village. Indeed, at the time of my first visit to *Banana* in November 1882, I was informed that it was perfectly easy and safe to go alone in a hammock with native carriers from *Banana* to the mouth of the *Ogowé*, along the coast, and the journey could be accomplished at a moderate expense. I had very nearly settled to undertake this interesting trip, and nothing but the arrival of Mr. Stanley diverted me.

Since then, however, owing to the arbitrary proceedings of the French along the *Loango* coast, the road has been temporarily closed.

Before I proceed further in my description of the Congo, I should like to say a few words on the physical aspect of South-west Africa, which offers certain peculiarities that have not, as far as I know, been sufficiently insisted on by African geographers, and which will necessarily be referred to in my continued account of the different phases of scenery along the lower course of the Congo.

Throughout the western coast of tropical Africa, from *Sierra Leone* to the river *Ogowé*, the one prevailing landscape is that of endless forest. This is, in fact, part of the forest region—the forest belt which has a distinctive fauna and flora, and which extends eastwards, near the equator, more than half-way across Africa, to *Lake Victoria Nyanza* and the western shores of *Tanganyika*. This is the country of the anthropoid apes, which are found equally near *Sierra Leone* and on the *Wellé* and near the *Upper Nile*. But when the mouth of the *Ogowé* is passed, the forest begins to retreat from the coast and is gradually succeeded by more open savannah scenery, so characteristic of Africa, and so happily described by older travellers as "park-like," a designation which its open grassy spaces and formal groups of shady trees amply justify. Such is the country at *Loango*, *Kabinda*, and along the Lower Congo up to *Stanley Pool*. But a little to the south of the Congo embouchure the park-like scenery in its turn begins to retreat from the coast somewhere about *Cabeça da Cobra*, a place I have already mentioned, and there follows a much uglier region of sparse vegetation and less abundant

rainfall. Of such is the country around Loanda, where scarcely anything but euphorbias, baobabs, and aloes are growing, and where there is often less than two months' rain in the year.

This harsh country continues along the coast for some distance until about the 13th parallel, where it in its turn trends off towards the interior, and absolute desert takes its place and continues uninterruptedly as far as the Orange River. In a journey from Mossamedes to the river Cunéné, such as I have recently made with Lord Mayo, you may successively pass through these three last phases of scenery, and after crossing a zone of absolute desert, enter a region of sparse vegetation, and finally arrive at the beautiful undulating country of scattered forest and grassy plains which only reaches the sea as far north as the Congo mouth.

This sterility seems to be a continuation along the south-western coast of the Kalahari Desert, and it is curious that something similar takes place in Western South America, where the desert would appear to be prolonged northwards in a narrowing belt, and also in Western Australia—a contrast to the fertility and abundant vegetation of Brazil, Queensland, and South-east Africa.

The four regions I have just described may be said to vary from almost absolute sterility to transcendent richness of vegetation. Perhaps the word sterility is hardly a true one, as the desert soil is quite capable of producing ample crops; it is merely the rainfall that is lacking. The sandy wastes between Mossamedes and the Orange River grow little but the strange *Welwitschia* and a few stunted *Bauhinias*; in the succeeding region the euphorbias and aloes are the principal occupants of the soil, with an occasional baobab, mimosa, or fig. In the park-like country the forest trees are too numerous and varied to catalogue; but amongst them may be noticed the beautiful *Hyphæne* palm, the oil-palm as far as 10° S., the cotton-wood, the baobab, gigantic mimosas, figs, and a variety of splendid trees belonging to the papilionaceous order. This is the most typical region of Africa, and it is the country of the large game animals. Finally, the forest belt that clothes so much of Western Africa is the grand climax of vegetable development, where with ample space, continual rain, and an equatorial sun, plant life flourishes and rules supreme above the animal world.

The first place on the Congo at which I made a protracted stay was Kissangué, a semi-Portuguese trading settlement on the south bank, about 21 to 23 miles from the sea. This was a singularly interesting district, and, in spite of its marshy character, very healthy. The mangroves still grew here, but were no longer the principal occupants of the watery soil. Away from the temporary and feeble clearings that the few commercial houses had made, a majestic forest towered into the sky, displaying the most splendid effects that a rich and fantastic foliage, a brilliant colouring of varied greens, and a weird architecture of contorted and massive trunks could produce. In the marshy spots

down near the river's bank were masses of that fine orchid, *Lissochilus giganteus*, a terrestrial species that shoots up often to the height of six feet from the ground, bearing a head of glorious red, mauve, golden-centred blossoms scarcely to be equalled for beauty and delicacy of form.

Kissangué is very nearly an island, being encircled by two arms of the Congo, which only dry up occasionally in the dry season. On the mainland, where the land is really firm, more game is present than on the islands and marshy banks of the river.

The next settlement of any importance is Ponta da Lenha, where steamers call for supplies of wood fuel. Ponta da Lenha, 40 miles from the sea, and just out of the district of the mangrove swamps, offers little of interest or note save its fine orange-trees, the only ones to be found on the river. This place is barely above the level of the stream and the shore has to be protected with piles, as the Congo, continually widening its bed, is slowly eating Ponta da Lenha away. Towards Boma the hills begin to approach the river and the character of the country becomes sensibly altered. The vegetation is no longer so luxuriant, and the highlands are destitute of trees and covered with long grass, owing to the periodical bush fires. Advancing from Boma the valley of the Congo gradually but rapidly narrows and the character of the country becomes harsher and bolder. At Mussuca the *Borassus* palms, so graceful an addition to the landscape, begin to disappear, the forest is relegated to the narrow ravines, and the hills, scarped and bare, rise higher and higher above the straitened stream. As we approach Vivi we pass an extraordinary gorge called Hell's Cauldron where the Congo boils and seethes at the base of the red cliffs, and the little river steamers find it hard to force their way up through the many whirlpools. Around Vivi the landscapes are rather imposing. The mountain-sides are bare but grandly shaped, and in the winding ravines there is rich forest. Opposite Vivi, the Mpósó river which flows from the direction of São Salvador, enters the Congo, and a little beyond it is the last fall of the Congo, a short distance below the celebrated rapids of Yellálá, which as the crow flies are about nine miles from Vivi, though the native road makes the distance somewhat longer. The wild hills round this tortuous part of the river's course are almost destitute of trees and are generally sparsely covered with coarse grass. Large intrusive blocks of gneiss often lie scattered in the valleys, possibly washed down there by the heavy rains, which must rapidly modify the surface of this country, to judge by the effect one thunderstorm can produce in furrowing the hillsides with temporary watercourses. The journey up the irregular native path which leads to the stony height overhanging the Yellálá Falls is very fatiguing, for the rocks are disposed in ascents which are almost stair-like, more resembling perhaps the sides of the Pyramids, each step being often three feet high. As, however, you round the hillside, a sudden turn in the path brings a grand scene into view and a deafening

roar of falling water. From a projecting slab I looked down some hundred feet on the giant Congo, leaping over the rocks and dashing itself against the imprisoning hills. Several islands bestrewed its stream, one especially remarkable from being a mass of velvety woods. This was called the Isle of Pelicans, for numbers of these great birds used this inaccessible spot as a breeding place. Before the first fall occurred the river came gliding on smoothly, with a glassy surface, and when it first met the rocks it streamed over them almost unresistingly until, as if exasperated by repeated checks, in the last grand fall of Yellálá it lashed itself into white and roaring fury, and the sound of its anger deafened one's ears and the sight of its foam dazzled the eyes. In all probability the Congo never descends here more than 12 feet at a time, but the constant succession of falls and the obstructing rocks lash the water into a state of indescribable fury. It is a race of waves; some seem to outstrip the others, and every now and then, the water rebounding from the descent meets the oncoming mass, and their contact sends a sheet of foam and clouds of spray into the air. The rocks near the water's edge are covered with a long filamentous water-weed of intense verdure, and looking like long, green hair. White plumbago and many bright flowers are growing in the interstices of the grey rocks, over which large blue and red lizards chase the flies that are half stupidly basking in the sun. At the greatest fall of Yellálá, the river is divided by a great fragment of hill separated from its mother-mountain by one half of the stream, and farther up more masses of rock in which the white gneiss crops out abruptly, intersect the river. On the hillsides also many bits of porphyry and gneiss jut out from the red clayey soil. The forest is hidden in the deep ravines, and only small bushes occasionally appear amid the rank grass that covers everything. The background is a strange wild jumble of hills, and the heavy rains have scooped and furrowed their friable soil into clefts and ravines and hollows, in which the dark forest hides from the constantly recurring bush fires that sweep over the country when the grass is dry.

The scenery between Vivi and Isangila is very varied and often beautiful. It is mountainous, but not so harsh and unclothed as around Yellálá, while the valleys are filled with splendid forest; and some of the ravines through which the streams tumble in white cascades over the blue-grey rocks, spanned by the creepers which stretch from palm to palm, are richly varied in effect. In broader valleys, such as that of the river Lulu, the forest is magnificent; and the glades are carpeted with mosses and silvery lycopodiums, through which the little track or foot-wide path meanders. Much animal life is evident here. At almost every turning the path introduces you brusquely to a family of monkeys, who have descended from the tree-tops to feed on the small ground-growing berries, or to plunge their greedy, wasteful fingers into the crimson pulp of the straying gourds. They bound up into the trees

on your approach, taking refuge on large platforms and nests of twigs which they seem to have constructed on the upper branches. The green fruit-pigeons startle you in the trees with their strange cry, commencing with a whirring noise, two or three clucks, and ending up with a sweet and prolonged coo. The bee-eaters are swooping in eccentric circles on the many flying insects, and little hornbills sit in staid immobility on bare and exposed branches.

The rapids of Ngoma are the next important falls of the river above Yellálá, and the scenery is very fine about here. At Isangila, however, are probably the most picturesque falls to be seen on the Congo—if "falls" be the best term to express what are after all scarcely more than immense rapids, for the Congo never descends in vertical cascades. On the south bank, nearly fronting Isangila station, is a lofty cliff—a hillside cloven in twain, its scarp sides of a purple-red colour; but its sombre look is relieved by the bright green grass that clothes the little knolls and irregularities varying its sheer descent towards the Congo, and the graceful crown of forest, which lends a pretty finish to its somewhat gaunt head. At its base, the river which has hitherto been gliding onwards with deceitful smoothness, suddenly breaks into white foam, but only that part of it near the base of this cliff; the other half of the great river goes rolling on, smooth and unruffled, till at length the whole stream takes one great bound over some hidden ledge of rocks, and the mass of this mighty current is lashed and churned into a terrible conflict of waves. From the constant come and recoil of the masses of water rise tall columns of spray, descending in glittering drops on the tree-clad islands, and forming under the sun's rays fitful gleams of rainbow colours which seem at first hallucinations of the eye. Below this great Isangila Fall, the river breaks away into many little bays of quiet water. At this spot, the river Lulu, coming from great distance to the southwards, joins the Congo.

From Isangila, which I may mention was the last point reached by members of Captain Tuckey's expedition, who call it "Sangala," to Manyanga there is a stretch of river about 80 miles in length sufficiently free of serious obstacles to be navigated even by rowing-boats, although when going up stream these have at times to be dragged up the rapids with ropes from the shore. The scenery along this part of the Congo is at first very pretty. For some distance past Isangila the banks are richly forested, and masses of creepers overspread the river-side trees. Here and there, especially about the rapids, the Congo is strewn with rocky islets, sparsely crested with trees; and in and out of these the stream whirls and eddies over the hidden rocks, making many formidable whirlpools, in which great flecks of foam, like balls of cotton-wool, are dancing madly in a perpetual round. In the broader parts (and its breadth here is nearly a mile) groups of trees stand in the very middle of the river, stemming its rapid flood. They must mark the sites of rocks

and banks uncovered in the dry season, or, more probably, of newly submerged islands, for otherwise the seedling tree could hardly have obtained sufficient growth in one dry season to withstand the river's flood.

Some distance beyond the Livingstone Falls, which are not very striking, the Congo broadens greatly, but nearing Manyanga, the scenery of the river becomes commonplace. Low hills of magenta-coloured earth, streaked and spotted with dull yellow-green and fringed at their bases with scanty forest, border the great watercourse. Beyond Manyanga, however, high hills approach the Congo, and once more confine its turbulent stream within narrow limits. The great falls of Ntombi Mataka here take place and offer the nearest approach to a cascade that this river exhibits. The two lines of dazzling white that seem like two successive "steps" of water may be seen from a great distance on the surrounding hills. The backwater that is here made by the current is very dangerous, as a boat crossing the river from Manyanga may easily be drawn into it and carried up stream to be whirled suddenly into the cataract.

There are two roads hence to Stanley Pool between which to choose (for you can no longer follow the river by water), one on the north and one on the south bank of the Congo. That on the south bank is usually preferred as being shorter and leading through pleasanter country. From the high plateaux beyond Lutété, a large native village near the Ntombi Mataka Falls, a fine view may be obtained of the Edwin-Arnold river, as it comes leaping in tremendous cascades into the Congo. The waters of this stream look exactly like a white cloth laid at intervals over the purple-wooded hills, for the distance at which you are standing does not permit you to see the motion of its water, and the sheet of white spray is apparently as still as if photographed. The trade route, one of the great ivory roads to the coast, which we follow from Lutété to Stanley Pool, is strewn with the top leaves of pineapples which, when the fruit is eaten, are thrown away, and taking root in the rich red soil at the side of the path, serve to spread this plant along the whole route between Stanley Pool and the coast, in some places, especially in the moist ravines, forming an almost impenetrable hedge on each side of the narrow path. The inhabitants come to these valleys and fill their long wicker baskets with the fruit, which now forms so large a part of their diet.

The country between Lutété and Stanley Pool presents many beautiful landscapes. A great stretch of valley, filled with rich forest, with a sounding stream that is seen flashing through the trees, is bounded by boldly-shaped hills, between each of which lesser valleys lie, that seem, as it were, tributaries of the great one, some of them mere crevasses in the mountains, but each with its tiny stream, its cascades, and its velvety woods. Occasionally, especially near

Lutété, patches are cleared in the valleys, and the rich soil which the rain is always washing down from the hills is planted with manioc, tobacco, ground-nuts, and bananas. This gives at times a civilised look to the country, and suggests the idea that in the future, when colonists flock to occupy the Congo territories, these lowlands will become fertile valleys, bringing forth the products of the tropics; while their hillsides, terraced and planted with vines, will be surmounted with many a fine-built habitation. The rounded hills that encircle these luxuriant valleys are covered with strong coarse grasses of several sorts, of which the flower-stalks often attain the height of 12 to 15 feet, and with gnarled and stunted trees, bearing leaden-coloured, almost uneatable fruit—I should omit the qualifying "almost" were it not that I have seen the natives occasionally gnawing them. These trees are spread sparsely over the hillsides, and give them from a distance a spotted appearance. This difference in richness of vegetation that exists between hills and valleys in this part of Africa is not due so much to the relative abundance of moisture as to the prevailing grass fires in the dry season. These sweep over the hills, at times, destroying all the finer trees, so that only these stunted shrubs and the rank grass spring up from their roots anew and flourish for a season. Therefore it is that around the villages whose plantations are protected from the ravages of the flames, as far as may be possible, rich forest invariably exists. Again, in all shut-in valleys and river-courses where the fires are choked, there vegetation of the most wonderful character riots in all the wild luxuriance of its unchecked growth.

About noon on the third day after leaving Lutété, I came to the banks of the Inkissi, and had to cross that swift, rolling, turbid stream in native canoes. The natives always land much lower down the river than the place where they embark, for the current is so swift that it is impossible to entirely withstand its influence. It is here about as wide as the Thames at Windsor.

Some little distance before Stanley Pool is reached, there is a smaller widening of the Congo with two or three large islands in the centre, and where the river has three successive falls, called by the natives the Father, Mother, and Child. They are called the "Itsi" Cataracts on some maps. "Itsi" is only one of the many words in the Congo dialect for a rapid or fall, and in these tongues there are terms to express most of the effects of falling or troubled water. Ngoma, Ntombi, Yellála, are all descriptive names, and one word, Mpúto, which really means troubled water, is often for that reason applied to the sea, and in a more abstract sense to those who come from the sea, viz. the Europeans. The old term Mwéné Mpúto applied by the natives of the interior to the great chief of all white men, does not, as the Portuguese would have us believe, mean the King of Portugal, but literally "child of the sea."

The great expansion of the Congo at Stanley Pool I have already

treated of in my former paper, so I will not repeat here a detailed description of this beautiful lake, with its forest-clad islands, its placid waters, and its wooded cliffs. Although the north-eastern end is shut in by high hills, the mountains do not encircle the expanse of water but retreat from it on both sides, and the level plains that stretch away for some miles to the south of Stanley Pool at but a few feet above the water, give one the idea that it is somewhat shrunken in extent.

On ascending the Congo higher than Stanley Pool, the scenery becomes very much more tropical than amid the rather denuded, rocky country of the cataracts. We are now entering the forest region, and the vegetation has attained a greater richness and development and variety of forms than below the Pool. Many new species of plants, new trees, new palms, make their appearance, together with birds and butterflies of the forest country. The banks continue to be high, and are densely wooded, but often the river is closely shut in, and although the region of the cataracts may be said to be past, or, in descending the river, not yet begun, still there are occasional rapids and scattered rocks that suggest the fact that there were once cataracts above Stanley Pool. The current in the centre of the river is so strong and so beset with whirlpools as to be dangerous to native canoes or small boats. A few islands occasionally stud the stream, one of them, Flamini Island, being covered with nearly 2000 *Hyphæna* palms; but as a rule the course of the river is pretty clear and its breadth an average 1000 yards until after the confluence of the Wabuma-Kwango. Both this latter river and the Alima have their outlets much impeded by sandbanks. The upper course of the Wabuma much resembles the Congo. It flows out of Lake Leopold II., then broadens out greatly in a flat country of dense forest, and is covered with many islands. It narrows again where it receives the great Kwango from Angola, and the embouchure of these two great rivers united is somewhat insignificant. Their waters flow for some time side by side without mingling with those of the Congo. Some distance before Bólóbó is reached, the Congo has commenced to broaden greatly, and the effect at times seemed to me as if I were entering upon a great boundless lake, for there is often a clear horizon of water. At times the two distant shores are hidden by islands which appear like the mainland, so that the immensity of the stream is not always apparent. But although very broad, it is in parts, away from the central current, very shallow and needs careful navigation to avoid the many hidden sandbanks. The hills that have hitherto accompanied the stream trend away to the north, and we are at last in the great central basin of Africa and in the dense forest belt.

The climate of the Western Congo naturally varies in different degrees of healthiness and temperature according to the regions through which the river passes, but on the whole it may be said to be infinitely superior to that of the Niger or the Gold Coast. The great absence of

low, marshy ground about its banks is doubtless the cause of less virulent fever, and the regular cool breezes from the South Atlantic greatly reduce the tropical heat. The river probably is least healthy between Boma and the sea, owing, no doubt, to the mangrove swamps that inevitably attend the widening out of the embouchure. Boma itself is decidedly insalubrious. It is the hottest place on the Congo, and surrounded by many marshes. Towards Vivi it becomes decidedly cooler, owing to the greater elevation; and the higher you proceed up the river, the healthier the climate becomes. One aid to health is the magnificent drinking water that may be had everywhere above Boma; not the water of the Congo—which, though wholesome, has a disagreeably sweet taste—but the water from the unnumbered rills and rivulets which are everywhere trickling, wet and dry season alike, all the year round. Consequently dysentery is almost unknown above Vivi. The most prevalent form of sickness is the ordinary African fever from over-exposure to the sun and sudden chills. The most dangerous malady is bilious fever, the "febre perniciosa" of the Portuguese, but this is rarely incurred without much previous neglect of one's health. Beyond Stanley Pool, I can only call the temperature delightful. It ranges, at such a place as Msuata for instance, from 87° in the shade at noon to 60° at two in the morning, and this in the rainy or hot season. The highest temperature I have ever observed at Vivi was 98° in the shade, on a very hot day. It is quite possible to walk about all through the middle of the day and not feel the heat disagreeable, provided you wear a helmet and carry an umbrella; but when you see, as I have seen, young men newly arrived from Europe exposing themselves to the noonday sun with nothing but a smoking-cap on their heads, you will hardly be surprised that occasionally deaths from sunstroke take place. And then the relatives of these victims to their own imprudence write to the papers, especially in Belgium, and speak of the cruel African Minotaur and its meal of white flesh!

The relative length of the rainy season also varies as you advance from the mouth of the Congo towards the equator. Near the sea there are about four months of rain—November, December, February, and March, with an intermediate dry season in the month of January; but ascending the river you find this gradually altering, and on Stanley Pool the rains commence in October and continue till about the 20th of May, thus leaving little more than four months of dry season. There is also here no interval in January, no "little dries," as they are called. Higher up the river still, approaching the equator, the natives tell me it rains often in June, August, and September, so that this may be called a true equatorial climate, where rain is seldom absent, and consequently, as we find at Bólóbó, this is the region of perpetual forest. The reason this forest belt does not extend more fully over Africa is that where there is a continuous dry season of four, five, or six months,

there is time for the long grass to become thoroughly tindered by the sun, and the natives can then more easily set going the great bush-fires, in which they delight, which clear the ground for their plantations, and at the same time sweep the forest from the hills. In the equatorial regions of perpetual moisture this is impossible, and so the forest country there with its somewhat peculiar fauna and avi-fauna continues to represent a condition of things which probably existed more widely over Africa before the advent of man. After all, this open country is far healthier than the dense forest.

The fauna and flora of the Congo region between the Stanley Falls, which lie almost in the centre of the continent, and the coast, are by no means uniform, and may be said to offer three distinct aspects, caused by the character of the regions through which the Congo flows.

What may be known as the first region extends from the sea-coast some eighty miles at most inland, and belongs to the marshy forest country. This swampy area, where mammals and birds are remarkable for their peculiar forms rather than for richness in species, prevails along the lower river uninterruptedly from the coast as far as Ponta da Lenha, about fifty miles from the sea, and further extends, somewhat modified in character, to Boma and beyond, where it insensibly mingles with the next, or "cataract" region, which is characteristic of the parallel mountain chains extending from the Upper Ogowé right down the continent into Southern Angola, and separating the central plateau or basin of tropical Africa from the strip of low-lying coast land bordering the sea. In this mountain district, which commences some little distance beyond Boma, and may be said to include all the cataracts or rapids of the Congo as far as Stanley Pool, the fauna and flora are of a more generalised type than those of the first and third regions, and partake more of the fauna and flora prevailing in Angola or Lower Guinea. Finally, the influence of this somewhat poor region of stony hills and rocky boulders fades away before the splendid richness of the central plateau, and at Stanley Pool new forms characteristic of Central Equatorial Africa make their appearance; and so abrupt is the change, that the upper end of Stanley Pool more resembles the regions of the Welle and the western littoral of Tanganyika in its natural history, especially in its flora, than the tract of country 20 miles off, which begins with the first cataract at the lower end of the Pool. Though I have not myself penetrated farther than about 2° 30' S. of the equator, yet by comparing my observations with those of Stanley along the Upper Congo, and Schweinfurth on the Wellé, I have arrived at the conclusion that there is no sensible difference in the fauna and flora throughout the great basin in which the Congo flows between Stanley Pool and the Stanley Falls; nay, that over that vast tract of country there is more uniformity in forms of life than between the cataract region and the coast. It is an erroneous idea that the Congo is a natural

boundary in the distribution of certain forms, or that it even acts as a limitation southwards of the so-called West African region. I have read in many works on Africa, or on the distribution of plants and animals, that the Congo was the southern boundary of the habitat of the grey parrot, the anthropoid apes, and the oil-palm (*Elais guineënsis*). Now the grey parrot reaches perhaps its greatest development in Malanje, a district of Angola nearly 300 miles south of the Congo, and, together with the oil-palm, continues to be found as far as the tenth degree south of the equator; while the anthropoid apes can hardly be said to be limited southward in their distribution by the river Congo, for they do not reach even to its northern bank, or approach it nearer than Landana, 100 miles away. Near the equator it is possible that gorillas are found both north and south of the Congo, and we know that a species of anthropoid ape is found to the west of the Lualaba at Nyangwé. Again, the harnessed antelope (*Tragelaphus scriptus*) and the red buffalo (*Bos brachyceros*), both supposed to be purely West African, or "Cis-Congo" forms, are found on the Quanza river, which lies from 200 to 300 miles southward of the Congo, while other West African species do not extend beyond the equator, and therefore are unknown along the Congo in its lower course. The beautiful flower called *Camoënsia*, which was thought by Welwitsch and Monteiro to be confined to Angola, I have seen growing on the northern bank of the Congo between Vivi and Manyanga. In short, I have never seen any difference between the fauna and flora of the northern and southern banks of this great river; nor do I believe that it acts in any way as a limitation to the range of species.

The races of man that inhabit the basin of the Congo throughout its entire course—certainly in all that part of it that I have visited—belong exclusively to that great Bantu family which is so distinct from the true Negro. The adverb "exclusively" can only be modified if it be found that the dwarf races which are known to inhabit part of the country that comes within the Congo basin, can be proved to belong to a distinct variety of mankind. It is possible they may; but until this is done, I shall still assert that the races inhabiting the Lualaba-Congo from Lake Bangweolo to Stanley Pool are Bantu of the purest type. Nearing the coast, the tribes begin to lose their distinctive character, either through the degradation the coast climate seems to entail, or because they originally met and mixed with, on the low-lying coastlands, an earlier negro population. This latter supposition sometimes strikes me as being the true one, because in such a littoral tribe as the Kabinda or Loango people there are distinctly two types of race. One, the Bantu—a fine, tall, upright man, with delicately small hands and well-shaped feet, a fine face, high, thin nose, beard, moustache, and a plentiful crop of hair; the other an ill-shaped, loosely-made figure, with splay feet, high calves, a retreating chin, blubber lips, no hair

about the face, and the wool on his head close and crisply curled. The further you go into the interior, the finer the type becomes. Such men as the Ba-yansi of Bólóbó are perfect Greek statues in the development and poise of their forms, and two points about them contrast very favourably with most of the coast races, namely their lighter colour—generally a warm chocolate—and their freedom from that offensive smell which is supposed, wrongly, to characterise most Africans. Many other details show the comparatively high status of the Upper Congo tribes: their small hands and feet, their well-shaped legs with full calves, and their abundant heads of hair. It is true that the arms are often very long, which is thought to be a sign of a low type, but this is a characteristic that is not always persistent.

The principal tribes to be encountered in ascending the Congo to the equator are, commencing at the mouth, the Ka-kongo (Kabindas and others), Mushirongos, Ba-kongo, Ba-sundi, Wa-buno, Ba-bwendé, Ba-téké, Wa-buma, Ba-nunu, and Ba-yansi. Of these the Kabindas or Ka-kongo people have been already touched on, and I might mention further that they are the Krumen of the south, hiring themselves out in all directions as servants, sailors, labourers, and affecting more particularly the Portuguese colonies, which they overrun as far as Mossamedes, invariably returning home after a time to spend their earnings. The Mushirongos, or more properly Mushikongos, are an ugly and degraded set, coming little into contact with the whites. Then we arrive at the great Ba-kongo tribe, the once ruling race of this part of the river, whose king or emperor still lingers on at São Salvador. Their dialect bears many traces of their ancient dealings with the Portuguese, many words of that language being incorporated to express new concepts introduced by the white man. I might mention, in parenthesis, that a few words of Portuguese have even penetrated into the dialects of the Ba-yansi, so great was the influence exercised by Portugal, originally, over the Lower Congo. The next tribe, the Ba-sundi, offer certain curious customs and dances which I have not time now to treat in detail. They and the Ba-bwendé are somewhat less kindly and peaceful than the other Congo tribes. The Wa-buno, on the other hand, are gentle and winning in their manners. Then we arrive at Stanley Pool and the now well-known tribe of the Ba-téké, which first make their appearance there. The Ba-téké scar their cheeks with striated lines, and wear their abundant hair in a variety of fanciful manners, more frequently strained over a hard pad into a kind of chignon. The Ba-téké are comparatively recent immigrants into the Congo valley, and as yet do not extend beyond its southern banks. They come originally from the high plateaux which form the watershed of the Ogowé, and the north-western affluents of the Congo, and have advanced towards the Congo in a southward direction. Their headquarters may be said to be the residence and town of a great Ba-téké chief, at present Mpumo Ntaba, the successor of

De Brazza's Makoko. Along the Congo, the Ba-téké often form alternate colonies with the Ba-yansi, for the two races overlap one another.

Ascending to the Wabuma river, we come upon the tribe of the same name, which inhabits the lower waters of that great river. They are doubtless the same people as the Aboma found by De Brazza near the Alima. The Wa-buma are a gentle, inoffensive race, living on the best of terms with their more intelligent neighbours the Ba-téké and the Ba-yansi. This latter race is the most highly developed I have yet met with on the Congo. They inhabit the river from the equator to the Wabuma, but extend their colonies even farther down the river. They are the great carriers of the Congo and regularly traffic between their equatorial neighbours the Bangala and the people of Stanley Pool, who in their turn carry on the ivory and other products to São Salvador and the coast. The Ba-yansi of Bólóbó have a decided indigenous civilisation of their own. Their houses are large, and fairly high, and divided into three or more rooms, the floor often being covered with clean matting, and the door, made of laths and matting, can be swung backwards and forwards on a rude hinge. Their pottery, their weaving, their wonderful power of artistic decoration, their metal-work in iron and copper, their attempts at husbandry and their contrivances for fishing and bird-trapping all show a great advance on the tribes of the lower river. I like the Ba-yansi. There is something so genial, merry, and hospitable about them, and they are so quick and free to understand a white man's ways. A Mu-yansi is a man of the world, a great traveller himself, and free from prejudices and superstitions. In fact the few remains of fetish and other ceremonies that remain among them they half apologise for. I came across none of that poison-water ordeal amongst them that is so prevalent with the coast races; I do not say it does not exist, but I never observed it. The chief of Bólóbó, Ibaka, is a great Ba-yansi chief, and his sovereignty is hereditary and his family is considered royal even in its collateral branches. He rules over a large and thickly inhabited strip of the river about 70 miles in length, of uncertain width, and with a population of about 20,000 people.

The languages of these three tribes, the Ba-yansi, Ba-téké, and Wa-buma, are Bantu of the purest type. That of the Wa-buma, however, has undergone a slight degradation in its prefixes, and has acquired a strange guttural sound resembling the Arabic *ghain*. In Ba-téké and Ba-yansi, or to speak more correctly, in Ki-téké and Ki-yansi, the numerals reach to 10,000 in calculation; after that they employ a word meaning "myriads," or "not to be counted." I have collected full vocabularies of these three tongues which I intend shortly to publish and to which I must refer you for fuller details.

The whole life of these people is simpler and broader than among the coast tribes, and they have far fewer intricate religious customs or peculiar observances. In fact they may almost be said to have no



religion at all beyond ancestor-worship and the propitiation of evil spirits. But their languages betray that they had, in a lower stage, a very complicated system of theology, like most low tribes, and that their dispersal from their ancient home, their roving habits, and their mixing with other tribes and other gods have probably reduced them to the state of genial agnosticism in which they now live.

A few words as to their domestic animals may be of interest. The ox is unknown, and his old classical Bantu name *ngombu* or *ngombe* is applied in the Ba-yansi tongue to the buffalo. The domestic pig is largely kept by the Congo peoples. I do not agree with the opinion of those who surmise that the pig was originally introduced into West Africa and the Congo regions by the Portuguese. The pig, in a domestic state, extends among the Bantu races right across Africa, and everywhere possesses a similar name. The pig in Ki-yansi is called *ngūlū*, and in the Ki-swahili of Zanzibar is known as *ngurūwé* or *ngūlūwe*. It is a black, bristly, high-shouldered beast, very like the Irish greyhound pig. Like most African domestic animals it probably had an Asiatic origin. The sheep is rarely met with beyond Stanley Pool, still it is known and named. It belongs to the Central African type—a hairy sheep with small horns, and a magnificent mane in the ram, which extends from the chin to the stomach, and greatly resembles the same appendage in the aoudad, or wild sheep of Northern Africa. I do not believe, however, that this domestic sheep of Central Africa had its origin in this *mouflon à manchettes* of Algeria. On the contrary, the ewe, which has no mane, and the young maneless rams exactly resemble certain breeds of Persian sheep, like which they are pied black and white in colour. The goat of the Congo is a little, compactly-built animal, short on the legs and very fat. The females make excellent milch goats, and their milk is a most delicious and wholesome addition to one's diet. The general type of dog on the Upper Congo (on the lower river it is much mixed with European races introduced by the Portuguese) is simply our old friend the pariah dog of India and the East over again, with a look of the dingo and the wild dog of Sumatra superadded. It has a foxy head, prick ears, a smooth fawn-coloured coat, and a tail slightly inclined to be bushy, and is to my thinking a very pretty creature. They have one admirable point in their character in that they never bark, giving vent only when very much moved to a long wail or howl. They are considered very dainty eating by the natives, and are, indeed, such a luxury that by an unwritten law only the superior sex, the men, are allowed to partake of roasted dog. The cats on the Congo are lean, long-legged, and ugly, and offer every diversity of colour and marking. Tabbies, however, are the most commonly seen. These cats are splendid mousers, or rather ratters, and help to rid the native villages of the small black rats which infest them.

Pigeons are unknown in a domestic state. The fowl is small and mongrel-like. It is, however, very productive. Its name everywhere on the Congo is *susu*, a word akin in origin to the *kuku* and *chuchu* of the East Coast.

Finally, there exists here and there the Muscovy duck, a bird introduced into Western Africa from Brazil by the Portuguese during the seventeenth century. It is slowly spreading up the Congo, where it may eventually meet the specimens introduced into Eastern Africa by the same people. The natives of the Congo also owe to the Portuguese the manioc root, which they largely cultivate for food, the sweet potato, Indian corn, pineapples, ground-nuts, the sugar-cane, oranges, and limes, all of which, with the exception of the sugar-cane, have come from America, and all of which owe their introduction into the dark and ill-provided continent to a little people that has to put up with a great deal of ingratitude and calumny—the Portuguese.

Up to the present time the people have cultivated little more than is just necessary for their own subsistence, but now that Mr. Stanley's expedition is in the country, with some 2000 people to be fed, it has created a revolution in the local agriculture. Many fresh tracts are now being cleared and tilled and planted with maize, and Indian corn, and bananas, for the natives, always quick to perceive anything tending to their own advantage, have found a new and sure market for their products, and hasten to avail themselves of it.

The population all along the Congo above Stanley Pool is very dense. Towards Bólóbó there is scarcely a river-fronting space clear of villages, and Mr. Stanley reckons from fuller data that the entire population of the Congo basin may possibly amount to 49,000,000! or 55 to the square mile. These masses do not own one great chief or emperor. There is no analogue to the Muata Yanvo, or the negro kingdoms further north. Such chiefs as Ibaka or Mpuma Ntaba may rule over a few thousand subjects, but ordinarily every village or settlement is a little independent state. Much has been talked lately about the desirability of introducing some sort of political cohesion amongst these tribes, of inducing them to band together into one great nationality. This idea has been put forward on high authority, but I must presume very humbly, but very decidedly, to dissent from its advisability. What has hitherto made Mr. Stanley's work so rapid and so comparatively easy has been the want of cohesion amongst the native chiefs; he has had no great jealous empire to contend with, as he would have had further north or further south. If one village declined to receive him, the next town out of rivalry received him with open arms. There has been no *mot d'ordre*, and this has enabled him to effectually implant himself in their midst. Would you now hinder this entry of civilisation by banding the native kinglets in union, union which would invariably turn them with race-jealousy against the White? No, "Divide et

impera," and don't make this great work dependent on the caprices of an African despot, for the black man, though an admirable subject, can never rule. These people are admirably disposed in their present condition to receive civilisation, but the civilisation must come not as a humble suppliant but as a monarch. It must be able to inspire respect as well as naïve wonder, and this is what the expedition as conducted by Mr. Stanley has succeeded in doing.

To realise this, let us hastily consider the state of the Congo only seven years ago, and compare it with the present state of affairs. In 1876 the European merchants had penetrated no further than Boma, where they were all established. There was not a single trading station higher up the river. No one knew anything of the country beyond Isangila, except that the natives were all cannibals. Then Stanley, after first descending the river, returned from Europe in 1879, and in 1880 commenced his present work. What has he done? Without a single battle with the natives he has rendered in three years life and property so safe that I myself could voyage 200 miles beyond Stanley Pool accompanied by only three Zanzibaris. The merchants of Boma, since Stanley's advent, have founded fifteen trading stations between Boma and the falls at Vivi. There was not a single missionary on the Congo before 1879. Now there are three flourishing missions, the Livingstone, the Baptist, and the Roman Catholic, with many stations between Stanley Pool and the sea. The river Niari has been explored throughout its course, and a direct route traced between its mouth and Stanley Pool. Establishments like Vivi and Leopoldville, which deserve to be called small towns, have been created, and other stations, numbering in all some twenty-one, have been founded; so that now, between Equator Station, at the mouth of the great Mobindu, and the coast, there is a distance of over 700 miles secured to civilisation, and offering no greater risks to the traveller than a journey up the Rhine. Mr. Stanley has three steamers on the upper river, and a small fleet of lighters and canoes. The native chiefs are his active coadjutors. He everywhere keeps the peace, and is looked up to as the great umpire in regions where he was once a hunted fugitive. In short, whichever way our sympathies may go—and as Englishmen we ought to sympathise with this splendid outlet thrown open to our commerce—we must at least admit that the work is a colossal one, and that the man who has undertaken it has the indomitable will of the Anglo-Saxon.

On the conclusion of the above paper, the President called upon Mr. Van de Velde, a Member of the Belgian International Expedition who had recently returned from the Congo, to give some account of his journeys:—

M. VAN DE VELDE said he had spent two years with Mr. Stanley on the Congo. In the beginning of the present year Stanley sent an expedition under Captain Elliot from Isangila to explore the valley of the Kuilu river, north of the Congo, a country which was entirely unknown. At the same time he (M. Van de Velde) was sent

by sea to the mouth of the Kuilu. After two months' travel in the interior he met Captain Elliot at Kitabi between Baudouinville and Franktown, two settlements established by the Expedition on the banks of the river. The object of the expeditions was to find a good overland road from the coast to Leopoldville so as to avoid the cataracts between Stanley Pool and Vivi. Captain Elliot completely explored the country, and found many good native roads, which perhaps would be suitable for a railway direct to Stanley Pool, avoiding the cataracts and also the difficulties which the river presents above them. Other expeditions were about to be sent from Manyanga to the source of the Niari or Kuilu so as to continue the work done by Captain Elliot. Mr. Stanley had also founded a station on the coast at Massabe; another, Rudolfstadt, at the mouth of the Kuilu; another, Baudouinville, at the first cataract of the Niari; another, Franktown, further up that river, and others named Stanley, Niadi, Stephanieville, and Philippeville. All these had been founded since the beginning of the present year.

Mr. FRANCIS GALTON said that all geographers must congratulate themselves on the accession to their ranks of so able a young traveller as Mr. Johnston, who had the power of graphically describing what he had seen. He wished to ask one or two questions. Captain Tuckey in his return journey described the cataracts as having dwindled down to nothing more than the appearance of a Scotch burn, and stated that at that season of the year the volume of water passed underground, giving a very strange notion of the cavernous character of its stony bed. He wished to know what modern travellers on the Congo had to say about that statement. Another point on which he wished for information was this. In the old days of the slave trade, the men most stunted in growth and most peculiarly negro in appearance were said to come from Ambriz. It was known that a little inland the races were of a very much higher order, and Mr. Johnston had spoken of a perfect man of the world, of high intelligence, and free from superstition, who lived less than 300 miles from Ambriz. He wished to know where the lower race yielded to the higher one, and whether the transition was abrupt or gradual. It would also be highly interesting to himself to learn from Mr. Johnston, who had had the singular opportunity of comparing the races on the higher Congo with those on the Cunéné, what he considered to be their relative capacity and worth.

Mr. JOHNSTON in reply said he saw the Falls in the full height of the rainy season, when they were supposed to present their most imposing appearance. He should think it highly improbable that the volume of water ever passed underground. In the dry season the width of the Congo was very much decreased, and as many of the worst rocks were at the sides of the river the water flowed between them with less opposition than in full flood. With regard to the natives, Stanley Pool formed a sharp line of demarcation. Numerous Bantu races were there met with, but the type became lower as the coast was approached. He had a very high opinion of the tribes on the Cunéné, the Ovampos, but they were not half so developed in intellect as the tribes on the Upper Congo. Physically they were very much alike. As Mr. Galton knew, there was a great similarity between the languages, so much so that the men from the east coast could often make themselves understood among the tribes of the Congo.