

VI.

GAME PRESERVATION IN THE TRANSVAAL.

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In this paper I shall attempt to indicate as briefly as possible the steps taken by the Transvaal Government for the preservation of game in the portion of the Colony in which my work lies—the Sabie Reserve. To convey a clearer idea of the difficulties that have had to be contended with, I shall touch upon past conditions as well as those now obtaining, in so far as they affect indirectly the status of game in that part of the Transvaal which is still the home of what—I hope I may say—was a fast-vanishing fauna.

The country with which we have to deal is generally known as the lowveld or bushveld. In the character of its fauna, its flora, its climate, its soil, it is widely different from that of the high inland plateau to which it so closely approximates in point of distance; and some sketch of its general natural features may perhaps not be amiss.

As the traveller journeys west towards Lydenburg or along the Delagoa Bay line he finds that the country becomes gradually more broken, until west of Lydenburg and Machadodorp the hills rise on every side. Having ascended these, and having, let us suppose, climbed one or other of the higher peaks, he will see spread out to the dim eastern horizon, at many thousand feet below him, what appears to be a perfectly flat and forest-covered stretch of country, with the faint blue barrier of the Lebombo hills marking the Portuguese border just distinguishable. This is the lowveld, which rises very gradually from sea-level, and though attaining at the foot of the mountain barrier, which towers 4,000 feet above it in the west, a height of some 1,500 feet, it is generally limited in altitude to from 700 to 400 feet above sea-level. This is now the sole home of the larger wild game.

On descending into this region by one of the few steep and difficult passes of the Eastern Transvaal, the traveller will find

that which seems from afar to be a level plain to be in reality a mass of undulating hills and of deep-cut watercourses, all clothed in one unvarying garment of mimosa and wacht-'n-bietje thorn-trees, interspersed with deciduous vegetation of more or less stunted growth, while larger timber, to a great extent evergreen, clothes the banks of the rivers and the numerous watercourses. In places this unvarying bush opens out into bare patches, giving an impression of small open plains. In others it closes, as in the neighbourhood of the Sabie River, to the densest of thickets, through which a man on foot may force his way only with extreme difficulty and with much loss of temper and rending of garments. Features of the country are the outcrops of granite which spring up in the shape of solitary kopjes, standing like sentinels on guard at intervals of a few miles, and which serve as the home of colonies of baboons. North of the Oliphants River the mapaane-tree has almost a monopoly, mingled with lonely baobabs, which increase in size as one proceeds further north and which form so distinct a feature in the landscape of any country where they are found. A few large perennial streams water this country, flowing from east to west, being generally affluents of the Limpopo, which, curiously enough, though itself fed by many streams carrying large volumes of water, runs practically dry for several months of the year. This indeed is a feature of many African streams, and it is a curious point to note that many rivers of this continent actually have more water near their sources than they do at their mouths. The Zambesi, I may say, during the dry season probably carries as great an aggregate of bulk of water a thousand miles from its mouth as it does where it finally runs into the Indian Ocean. There are also a multitude of watercourses, varying from the size of considerable rivers to small drains, which only carry water during the rainy season, and then only for some few days after each deluge of rain. In the larger of these, during the remainder of the year water is only found with difficulty in stagnant pools and by digging in the sandy beds. The soil is on the whole sandy in its nature and shallow, but with a tendency to become richer and deeper as one approaches the foot of the Drakensberg. Generally speaking, in the low country rock is struck at a very few feet, which may probably account for the stunted nature of the vegetation in a greater degree even than the grass fires, though the latter no doubt are responsible for much warping and twisting of young timber. By May in each year the grass is green and 6 feet high, except where the bush is exceptionally dense, and by June becomes most inflammable, and from that month until

the early rains commence in October bush-fires, lighted by accident or design, are of frequent occurrence, and in front of a high wind will sweep for miles, leaping watercourses and leaving a blackened waste and piles of smouldering wood in their track. No doubt many of the sapling trees are thus destroyed and the growth of others retarded, while the young of many birds and beasts must perish; but, on the other hand, a mass of decaying vegetation would no doubt, if not purified in this manner occasionally but allowed to accumulate from year to year, become in that malarious climate extremely detrimental; and moreover, I think that but little harm is done by bush-fires to the best timber, the reason being that the latter grows where the soil is deeper and richer—on the banks of the rivers and watercourses, for example, and there the grass always remains green at the roots and consequently does not take fire easily. A greater danger is the habit, dear to the natives, of cutting down the finest trees in order to make new clearings each year for their crops of maize, which are invariably grown as near as possible to the river beds. The wanton cutting down of good trees has now, as far as possible, been put a stop to. Within the reserves, blue gums have also been planted experimentally in a few places, and while some of them are doing extremely well, others have remained stunted, apparently owing to the roots being unable to penetrate far into the soil. The heat is greatest from November until March, the hottest time being from the middle of December to the middle of January, when the thermometer at about 2.30 P.M. will average between 98° and 107° in the shade, falling at night to 70°. Cloudy days are, however, at this season frequently met with, and on these occasions the atmosphere becomes comparatively cool, though always charged with moisture and somewhat oppressive. The rainfall, never plentiful, is most in evidence in February and early in March, while from May until the middle of October, with the exception of one or two slight showers, there is no rainfall at all, and the climate is then pleasant and healthy. In June a little frost is sometimes experienced in the early mornings, especially near the rivers. During the month of June the thermometer at my station on the Sabie has registered for three years an average of from 75° during the warmest part of the day to 31° just previous to sunrise. Malarial fever is prevalent throughout the low country; it is at its worst at the close of the rainy season, namely, from March until the end of April, but cases do, no doubt, occur at all times of the year, and white men who have spent some years in the district appear to suffer most frequently from relapses during the so-called healthy

season. Blackwater fever is not of common occurrence, but a case or two occasionally crops up, and the percentage is, perhaps—seeing how small is the permanent white population—sufficiently large to bring the contraction of the disease quite within the range of practical politics. Natives coming from the plateau country appear to suffer from fever in a greater degree than do white men, and even indigenous natives moving from their own villages to distant parts of the lowveld not infrequently fall victims. This prevalence of malaria will no doubt for many years to come be a bar to any extensive attempt at white settlement, and this quite apart from the arid nature of the country, the unfruitful soil and the great heat.

Amongst the foot hills of the berg at an height of from 1,500 to 2,000 feet a few storekeepers and white settlers have lived for a good many years, but even in this comparatively healthy zone, which is blessed, moreover, with a good annual rainfall, a certain amount of fever exists and precautions must be taken if sickness is to be avoided.

The Rhinoceros Bird.—Horse-sickness is another obstacle which confronts the white man. It is no exaggeration to say that throughout the year a horse brought down from the high country will, as a rule, not survive for a longer period than a month, while from November until the following May a fortnight is as long as he can be depended upon. The average number of unsalted or unacclimatized horses that take horse-sickness is probably 95 per cent., and out of these 95 attacked possibly 5 may recover, although I think this is a high average, so that it may be said that 90 per cent. of all horses exposed in that, to them, most dangerous climate, will succumb, and at least half the number will not in all probability survive the first month, in spite of precautions that may be taken. All domestic animals, indeed, seem to suffer from a variety of diseases which are more frequent and deadly than in more temperate climates. Even the hardy and usually impervious donkey would appear less able to preserve his general health and condition here than elsewhere, and falls especially a victim to the rhinoceros bird. This little pest, which is sometimes held up for public admiration as a destroyer of ticks and other insects, descends in crowds upon the domestic animals of the dweller in the bush country. Horses jump about, kick and swish their tails and usually keep him off fairly well, but cattle and donkeys, being perhaps more patient and less highly strung, appear to make less effort to resist. The birds perch in scores on the backs, bellies and even the insides of the legs, and having consumed their legitimate food (the tick) proceed to

hunt systematically for the smallest scratch or abrasion of the skin. This having been found, they proceed to pick at the living flesh with their long strong beaks until the blood pours out, holes to a great depth in many cases being dug into the bodies of the victims. Cattle are able to protect themselves in some measure by means of their long tails, and moreover do not appear to come to any great harm or to suffer in general health; but donkeys lose condition, are prevented from grazing, and if not removed from the neighbourhood would eventually succumb. I have had donkeys which have been so seriously injured by deep holes dug into their muscles and tendons as to become permanently crippled. So far as I know, no way of disposing of or of keeping at bay this pest has been discovered. The turning out of animals to graze protected by numnahs and sacks strapped to their backs has been tried, but by rolling and passing under bushes they usually soon pull these protections off. Any ointment, even iodoform, or tar placed upon the animals seems to be rather appreciated by the birds as an article of diet. Shooting has no effect, in fact the more birds that fall to the gun the more appear to arrive, and they sit contemptuously upon the backs of animals until the enraged owner is close to them, and then rise together, giving vent to their discordant cries of alarm, or, what is quite likely, of defiance or derision. A native employed to do nothing but to chase away the birds appears to be the only successful method, and this is not one conducive to quiet and satisfactory grazing. Rhinoceros birds favour the thickest parts of the bush country, and are seldom found in any numbers where the forest is of an open description. They appear to follow the troops of 'Mpala about, as it is noticeable that in the summer, when the game leaves the vicinity of the large rivers, their presence is less conspicuous. So much for the conditions of lowveld life as it affects the white man. I do not think that these conditions will be such as to tempt intending settlers to introduce their wives and families to these wilds.

The Native Inhabitants.—Turning to the native inhabitants—as regards their past and present conditions, in so far as they have directly affected animal life in what are now game reserves and their vicinity—we must go back to the earlier part of the last century when Manika or Manuka, the first paramount chief of the Shangaans, appeared at the head of a conquering Zulu army, and found this country, as it is generally agreed, very densely populated by Tonga tribes. At that time it is probable that game was numerous, though conceivably less so than it subsequently became. Shortly after the Shangaan conquest,

which seems to have been for a native undertaking of rather a humane nature, both the conquerors and conquered began to be subjected to merciless onslaughts, first by the Zulus and subsequently by the fierce and warlike Swazis, another Zulu off-shoot, who lived immediately to the south. The brunt of these raids was borne by the conquered Tonga tribes, now known as Amahlangane, who had submitted to Shangaan rule. In the constant civil wars and foreign eruptions which shook the country, these tribes received but little protection from the ruling race, who themselves went in considerable fear both of the Swazis in the south and of the Matabele in the north. This, coupled with the apparent rapid desiccation of the country, had the effect of causing immense districts to be abandoned to the wild game, which for years must have roamed undisturbed, except by occasional native hunters from a distance. Elephants are said to have been extremely numerous, as is well shown by the names of many streams; but some time before the advent of the white man they had been, to a great extent, driven away or destroyed in the Oliphants and Sabie regions by native hunters from the East Coast armed with flintlock guns obtained from the Portuguese. Up to thirty years ago the low bush-country lying between the Drakensburg and Lebombo hills had but seldom echoed to the sound of the white man's fire-arms. Game was still numerous in the higher and healthier parts of the Transvaal, and the Boer farmer had not yet taken to trekking with his stock to this distant region for the winter grazing. The native population, not yet recovered—indeed, not yet quite immune—from Swazi raids, was so small as to be a negligible quantity. That dreadful scourge, the rinderpest, was not to come for many years, and consequently the wild game increased to an enormous extent and thrived exceedingly. Gradually a few white men, British and Dutch, began to make their appearance upon the eastern spurs of the Drakensberg and undertook winter hunting-excursions into the Fly country, for the tsetse, another powerful protector of the game, by the way, still held sway nearly throughout the whole of the bush country. The black and white rhinoceros, the buffalo, the eland and the sable and roan antelopes, the sassaby, the Burchell zebra, the water-buck, the koodoo and the ostrich, to say nothing of 'mpala—rooibuck, as the Boers name this handsome animal—swarmed in countless hundreds and thousands; all the country besides teemed with every species of smaller game, while the rivers were full of hippopotami, and elephants still remained, in the northern districts at least, fairly numerous. Later, a few Boer farmers, intent on winter grazing for stock

and on shooting biltong, began to make their appearance, their numbers increasing from year to year, as those who had been to this happy hunting ground spread the news amongst their friends. The stock and waggons would on these occasions be left at the foot of the hills, on the fringe of the low country, out of the fly-zone, while the hunters on foot or mounted on salted horses proceeded into the dangerous portion. A few settlers began to build themselves permanent houses among the lower spurs of the mountains, just above the fever zone.

Early Destruction of Game.—The encroachments of the hunters extended year by year both in distance and in general scope, and the game fell in ever-increasing numbers in response to the growing demand for skins, for trophies and for biltong, which demand was in direct proportion to the process of annihilation of the game indigenous to the highveld. The meat would be dried in sufficiently large quantities to last the fortunate hunter throughout the ensuing summer months, without imposing upon him the necessity of encroaching upon his flocks and herds for food to any considerable extent. Meantime also the natives, at last free from the danger of raids from the Matabele on the north or from the Swazi on the south, began to re-settle in the country, and with gun and poisoned arrow, trap and pitfall, waged increasing war against the game. In, I think, 1892 began the construction of the Selati Railway, and during a period of two years or more, while operations were in progress, the slaughter increased twentyfold. The hundreds of natives employed on the line, besides the small army of white men, contractors, overseers and others, drew their entire supply of fresh meat from the wild game. White hunters were employed regularly at salaries for the sole purpose of shooting animals for the supply of the workers, whose entire leisure time also was devoted to the same object. Parties of sportsmen from the towns of the Transvaal came up on trolleys and on construction trains, delighted at such easy access, and trucks piled up high with carcasses were a common sight in Komati Poort, the terminus of the railway; the meat frequently going bad before it could be unpacked and so becoming useless for human food. Many animals were doubtless slain for the sport of killing, and were left for the benefit of vultures and hyænas. To show the spirit which animated some of the hunters—one can hardly call them sportsmen—I may mention that I have been told on good authority that on one occasion a shooting party abandoned forty buffalo which they had shot, while it was a common saying that there were others whose trail could be recognized by the carcasses of the animals left to the vultures.

Giraffe were frequently shot merely for the purpose of cutting off the tail to be used as a fly-switch, while other animals were slain without even this excuse. During all this time there is no evidence to show that the destruction of the carnivora was at all proportionate to that of the defenceless animals. Lions were sometimes killed by a few sportsmen, notably by the Messrs. Francis, but on the whole the main body of hunters took but little trouble in the matter of maintaining Nature's balance, especially in regard to that deadly enemy, the hunting dog. How game survived this long period of persecution is indeed a mystery, but its survival says much for the extraordinary fecundity of animal life of these regions. However, on the abandonment of work on the Selati Railway and the consequent desertion of the country by the workers, contractors and storekeepers who had erected stations at many points near the line, things began to look a little brighter, though as an aftermath a good many traders remained to do a flourishing business with the natives, partly in skins and trophies, while ever-increasing crowds of trek-Boers for some months in each year still played havoc, and large parties of sportsmen from Johannesburg, Pretoria and elsewhere continually used the Selati line as a convenient point of ingress to the shooting country. In 1896-97 came the rinderpest, and as if it had not already drunk to the dregs the cup of bitterness, the relics of the unfortunate game, so numerous twenty years before, especially the larger kinds, such as the buffalo, eland and koodoo, went down like ripe corn before the sickle, and it seemed now as if the end of the larger fauna of the Transvaal had arrived. Nevertheless, even this last calamity was not sufficient to erase it completely, and at length, even at the eleventh hour, it became borne in upon the authorities that if another year or two was not to see the very last of the wild animal life something really ought to be done. The idea of game preservation was not even then quite a new one, for we find game laws dating back as far as 1858, and in 1894 it was decreed that elephants, hippopotami, buffaloes, elands, giraffes, rhinoceroses and ostriches should not be destroyed within the South African Republic, and that licences should be obtained for shooting all other kinds of game, varying from £3 for wildbeeste, koodoo and the like, to 30s. for the smaller antelopes, wild pigs, &c. A close season was also established, and various clauses were added, with the object of limiting the destruction of game, such as that not more than fifteen head of large or twenty head of small game should be killed by one person, under severe penalties. However, these enactments, excellent as they were, were palpably much more

honoured in the breach than in the observance, as the history of the low country only too plainly shows. Indeed, the method of enforcement would, under the conditions then governing the Republic, have been a matter presenting some difficulty. In 1895 a reserve was proclaimed between the Sabie and Crocodile Rivers and finally boundaries were adjusted by proclamation of March 26, 1898. To make laws is one thing, however, and to enforce them is quite another, without provision of adequate means for doing so. The destruction of game by natives especially was most inefficiently checked, even in the proclaimed reserve. The Native Commissioner would descend upon the lowveld in the early winter to collect taxes and to hunt, and would then deal severely with coloured persons found in possession of guns or in pursuit of game; but the astute native of these eastern districts, who lived practically by hunting, knowing what to expect in this season, was in the habit of taking himself and his belongings over the Lebombo into Portuguese territory. By sojourning there among his kith and kin during that season he avoided the Transvaal tax. By October not a white man of the ruling race would be left in the fever country, and he could return and work his sweet will for a clear six months unhampered, incidentally avoiding the tax collection by the Portuguese, who at that period were in the habit of collecting their native revenues during the summer months.

During the War.—Thus game was rapidly on the decrease when war broke out in 1899. About September 1900 the Boer commandos, driven from Komati Poort after the occupation of the Lourenço Marques railway line by the British forces, broke away northwards across the lowveld, and for some weeks the latter was filled with armed men and resounded to the rattle of rifle-fire directed now against the beasts of the forest. It is stated in one Boer account of this period that so thickly and promiscuously did the bullets fly that it was a positive danger to leave the camp or to venture into the bush. On the departure of the Boers, a final departure practically so far as the period of the war was concerned, from the country south of the Oliphants River, a corps of British irregular horse, with its headquarters at Komati Poort, undertook the defence and guarding of the border. This corps was some three hundred strong, and had a very large following of natives employed as scouts, guides and what-not. For some considerable time, fresh meat being otherwise unobtainable, these people lived entirely on the game. Fortunately, the Adjutant of the corps, Major Greenhill Gardyne (Gordon Highlanders), who had had extensive and long experience of game in India, and who was a thoroughly

earnest and keen sportsman, took up the matter of game preservation very seriously and did his best, and with some considerable success, to check the unnecessary and wanton slaughter of animals by the corps and attached natives, as well as by those Kaffirs living in the country. To Major Gardyne, I think, it is mainly due that the end of the war saw a stock of game in existence in the country in sufficient numbers to be capable of reproduction. It must be added that he was ably seconded by one or two members of the corps, who had had long experience of the bushveld, and who felt that the extermination of game had gone far enough. Thus, on the whole, during the war the game, though driven away and shot in certain portions of the Transvaal, probably rather tended to increase than otherwise in the less frequented regions. In the meantime things had not gone so well in the extreme North-Eastern Transvaal, which is now known as the Singwitzi Reserve. Here in the vicinity of the Singwitzi and Limpopo Rivers large parties of Boer hunters were almost continually present. Natives, all armed with guns, had no check placed upon them, and consequently game was in most parts of this district practically exterminated. It is only through the fortunate circumstance of the adjoining Portuguese territory being still well stocked, and through the animals having learned that they are safe on our side of the border, that we are now beginning to show a fair head of game.

Proclamation of Reserves.—In 1901, in response to representations on the subject, a ranger was tentatively appointed by the British Administration, whose entire business was to be the care of the proclaimed game reserve—namely, that portion between the Sabie and Crocodile Rivers. But after a few months it was found that until the termination of hostilities the scheme was a premature one. In June 1902, the war being over, the Government set to work in earnest to get an adequate system of game protection inaugurated. The boundaries of the old reserve were reproclaimed; a warden and assistant rangers were appointed, provision was made for an adequate staff of native police to see the law carried out, and funds were forthcoming for the necessary purchase of transport animals, for dwelling-houses for the officials and for other requisites. The game reserves were directly under a Government Department, whose chief, Sir Godfrey Lagden, took a keen and personal interest in the matter, an interest founded on much practical knowledge. The extent of the first area proclaimed comprised about 1,500 square miles, being, in fact, the old reserve originally proclaimed by the late S.A.R. in 1898. About twelve

months later, in June 1903, a small district lying between the Pongola River and the southern border of Swaziland, and measuring some 20 miles by 5, was added. This had also been a reserve under the late Government, but one in which game had almost entirely disappeared. Nearly simultaneously a large and unsurveyed tract of country of nearly 6,000 square miles in extent, lying between the Lebata River on the south and the Limpopo on the north, which has previously been referred to as having been almost if not quite denuded of game during the war, was also declared to be a game reserve. The only portion of the lowveld in contact with the Portuguese boundary remaining open to the efforts of the riflemen was now a district of some 5,000 to 6,000 square miles in extent lying between the Sabie River and the Oliphants River. This country was perhaps more largely stocked with the remnants of the larger fauna than any other part of the Transvaal, but owing to the fact of its being split up into farms, many of which belonged to private companies, it had not been possible so far to do much towards efficient protection. No white men inhabited this region, which resembles precisely the other portion of the low country. The natives were few and scattered. Many of the farms had only been roughly surveyed, and there were and are only a few instances of beacons. So far back as 1902 several representatives of private companies and others owning interests there had approached the Government with a view to having their property included in the system of game protection, and had, in fact, given the Government the right to act the part of owners as far as game preservation was concerned. Towards the end of 1903 it became possible to proclaim the whole of this region, which is about half Government and half private land, a game reserve, and this was the more satisfactory as several species of game still remained there which had been extirpated in those districts already proclaimed, notably the giraffe and roan antelope. Thus a continuous strip of reserve extending for nearly 300 miles along the Portuguese border, and with a general width of about 50 miles, was brought into being for the purpose of reviving and revitalising the fast disappearing fauna of the country, which had suffered so sorely and been so harshly treated in the past. The whole-hearted way in which private owners, especially the United Land Company, under the ægis of the Landowners' Association, have lent their support and influence to this preservation has alone made the carrying out of the scheme in its entirety possible, and I think that the thanks of all those who have the interests of game preservation at heart are due to

them. The assistance, unqualified as it has been, has immensely facilitated the accomplishment of our object. For the protection of these large districts altogether nearly 15,000 square miles, a staff of five white men and seventy native police was provided. The country itself is entirely uninhabited by white settlers, and is exceptionally arid, and there are many signs that the process of desiccation continues. Minerals have never been found in any workable quantity, so that, adding the other drawback previously referred to, it is hard to say to what better use than that of game and forest preservation it can at present be put. The native population is small and scattered, and found with few exceptions along the margins of the perennial rivers, and there is a tendency amongst it to decrease with each succeeding season of drought. In the past natives lived almost entirely for hunting, which was the reason for their being in the land at all, and now that they are unable to practise this, there is an increasing tendency to seek more fertile land as well as to patronize the labour market more extensively than of yore.

On taking over the reserves in 1902 it was found that very little idea of the real meaning of game preservation in its strict sense was present in the minds of either Europeans or natives. Although the local white men on the borders of the proclaimed country expressed on the whole sympathy with the scheme, nevertheless there may have been a feeling at the back of their minds that the intention was simply to form a shooting ground for the new Government officials. A good deal of trouble was at first experienced with the natives who had been accustomed, in times of peace, to evade the law and could not comprehend the new state of things, nor how it was that they were not allowed during the unhealthy season a free and unhindered run of the country in pursuit of the game. The latter itself was generally scarce, besides being extremely shy and wary, with an uneasy tendency to wander beyond its natural limits in pursuit of grazing and water. Carnivora, especially wild hogs, had been little hunted and had no doubt greatly increased, and large tracts of country, otherwise suitable, were found to be quite denuded of game. Altogether the task in prospect had its uncertainties. It, however, proved easier than might have been anticipated. A few convictions quickly created a new feeling amongst the impressionable Kaffirs, and I hope and believe that, as time went on, the white men who lived closest and had the best opportunities of judging, saw that the idea was not to make the land a happy hunting ground for the officials of the new régime.

Administrative Details.—The country has now been divided for administrative purposes into five districts or sections—namely, Sabie, north, south, west and east, and Singwitzi, while the Pongola Reserve to the south forms a sixth and detached district. To four of those districts white rangers are allotted, each with his staff of twelve or more native police directly under his orders, while the residence of the warden has been fixed at the Sabie River near the terminus of the Selati line, which forms perhaps the most central and easily get-at-able point in the reserves. The native police are usually distributed on the picket system in posts of two men, each placed at important points of ingress, such as mountain passes, main roads and fords, leading into the reserved areas, and their duty is, by constantly patrolling between posts, to see and report to the ranger in charge what is going on. Occasionally patrols go into the interior districts, remaining out several days at a time, reporting as to the state of the game and taking action in regard to offences against the game and other laws that may come under their notice. Constant patrolling on horseback is also carried out by the rangers themselves; in fact, hard work in all weathers and at all seasons of the year is a *sine qua non* to effective protection. So far gratifying results have attended this system. No shooting of game of any kind is permitted within the reserve and the destruction of the carnivora is in the hands of the staff. The task of preserving the game itself is easy enough, all the animals require being protection from the attacks of their enemies to enable them to thrive and multiply. While in the old days the principal efforts of the hunters were directed against the herbivora and predatory animals were relatively seldom killed, now the former are strictly protected, while the latter are systematically destroyed. In this way the balance of Nature, already restored, will shortly incline perhaps in favour of the game. The absolute extermination of all carnivora is, perhaps, to be deprecated, as no doubt many weaklings and sick animals are thus destroyed whose existence would otherwise deteriorate the breed. It must be remembered that it is generally the weakest who, by the natural law of the survival of the fittest, fall victims to their natural enemies. Man, on the other hand, by slaying the best and most essential to the welfare of the breed, tends to spoil Nature's work.

Varieties of Game.—The most common larger antelope in the country is undoubtedly the 'mpala or rooibuck, which is now increasing at a great rate. This graceful creature, the springbuck of the lowveld as he has been called, patronises the thick bush in the neighbourhood of the rivers. Natives describe the neigh-

bourhood of the Sabie River in the old days as having been red with these animals. There is no doubt that the country is well adapted for them, perhaps as much so as any part of Africa. They usually lamb in November, and after the first year a ewe does so every year for several years, producing one lamb at a time. The little ones after the first day or two are able to go at a great pace to keep up with the troop, which the mother rejoins at the earliest possible period after the birth of her offspring. These 'mpala form the principal food of all the carnivora and as they are so numerous that little perceptible effect can be produced upon their numbers, it is as well that this should be the case. As the tendency of all beasts of prey is to take, as it were, the line of least resistance, the larger and rarer species of game are to a great extent left unmolested. Besides the 'mpala we have the sable antelope and the sassaby, both increasing largely in their favoured localities. The kopdoo, sadly thinned by rinderpest, but now doing well; the blue wildebeeste or brindled gnu, already becoming quite numerous in the parts of the country which he likes best; the waterbuck, on the increase in the neighbourhood of the large rivers; the reedbuck and his mountain cousin, the rooibuck; the klipspringer, that wonderfully agile inhabitant of the rocks; the duiker in several varieties, the steenbuck, the bushbuck, the grysbuck, are all steadily increasing. The roan antelope, well nigh exterminated, has been seen on several occasions, and it has probably been recruited by members of its kind from Portuguese territory, seeking sanctuary. Of other animals, the buffalo exists in two small troops which have survived the rinderpest. The giraffe, whose bones, filling the bush, bear witness to the numbers in which he formerly existed, though increasing slowly is not infrequently to be met with. Burchell's zebra, found almost everywhere in small troops; the wart-hog and his cousin, the bush-pig, are both already quite numerous. Elephants have not been seen in the Eastern Transvaal since June 1901, when several were shot by Boers north of the Oliphants River, but this year four have come in from Portuguese territory, and it is to be hoped that, finding themselves unmolested, they may be induced to remain. For many years one solitary black rhinoceros has existed in lonely grandeur—the last of the Mobicans as it were—in the Sabie bush, where for the present it is to be feared he is likely to remain companionless; but the tracks of three others have been recently seen north of the Oliphants River. The eland, the largest of all the antelope tribe, and also usually the one to disappear first before the white man, was non-existent in the Transvaal for some years, but some few months ago five were seen in

the north. The hippopotamus is found in small but thriving families in all the large rivers. The wild ostrich is multiplying fast in the flats near the Lebombo hills.

Although, in speaking of any species of game as numerous, one only speaks in a relative sense, and although it must be borne in mind that two decades of remorseless destruction cannot be made good in a day, and that it will take some years of careful preservation before we can show a head of game to compare with that existent in those parts of the continent which have not had equally onerous conditions imposed upon them, it still cannot be denied that the increase in all species in the last three years has been very marked, and another scarcely less remarkable feature is the extreme tameness of the game. Indeed, where they are accustomed to seeing people quietly passing without harming them, they seem to be gradually losing to a great extent their fear of man, and he must have a hard heart indeed who could bring himself to fire upon such confiding animals. It is proposed to import experimentally some new species of game into these reserves from other parts of Africa at no distant date, and a fenced area has been set aside and enclosed for this purpose.

The breeding season of all the larger wild creatures is usually from the beginning of December to the first or second week in January, varying a little earlier or later according to the season. The waterbuck are an exception, as their calves do not appear until March. Of smaller antelope, the reedbuck appear to lamb as early as September or the beginning of October, followed shortly afterwards by the 'mpala. Such small buck as the duikers and steenbuck would appear to have no very regular breeding season. The same applies to the frankolin and small game-birds found in the lowveld, as I have found their eggs at all times. The guinea-fowl, however, are very regular in their season (the early summer).

The Carnivora.—Turning to the carnivora, the lion, the leopard, cheetah or hunting leopard, caracal, civet cat, serval, African hunting dog, spotted hyæna, and spotted and clouded genet, two kinds of jackals and several members of the mongoose family, are found throughout. Most of these animals have their young born during winter months. Otters dwell in the rivers, but nowhere in great numbers, and crocodiles still abound everywhere, even in some of the landlocked pools. Porcupines and ant-bears are numerous, but owing to their habits seldom seen. The ratel or honey-bear, that quaint badger-like creature, is rare but well distributed. The Cape hare and the rock rabbit are well distributed. Of game-birds we have two species

of guinea-fowl, the larger bustard, the bush-kharaan, three species of fränkolin, the dikkop and the sand-grouse, the latter migratory. There are several species of eagles, eagle-hawks and buzzards, and several of falcons and smaller hawks. The vulture may be seen soaring in the blue on any day and the turkey-buzzard is occasionally, though rarely, met with. Small bird life is extremely numerous and interesting, and the great African hornbill, better known to the natives as the 'sin-geese,' may be heard uttering his musical cry in the early morning.

As to fish, the king of rivers is no doubt the tiger fish, whose huge teeth, long and sharp as needles, placed outside his mouth and fitted into sockets in the opposite jaw, have a truly formidable appearance and make him a dangerous enemy indeed to those of the finny tribe with whom he comes in contact. The largest weight I have ever known one of these fish caught in the Transvaal to scale has been 14 lb., but there is no doubt they grow to a much larger size, for angling is still in its infancy in that part of the world. The tiger fish is essentially a top feeder, and he may be seen greedily rising at flies and moths as they float on the surface of the stream, while at other times, like the pike, he lies in wait in the dark shelter of some bank or clump of reeds to rush out fiercely upon some passing and unsuspecting victim. We next have the ordinary yellow fish, met with throughout South Africa. Thirdly, a species of perch which does not attain a great size apparently; and lastly that curious fish, the barber, entirely a bottom feeder. His slimy skin gives the idea of an eel to the mind, while his huge and peculiar head and tiny eyes and small mouth set near the point of the snout, and the long beard or feelers growing from the underlip make him the reverse of an attractive object on first acquaintance.

There is one subject about which a good deal of misapprehension seems to exist. Much has been said about the effect of our system of game preservation tending to an undue increase of the carnivora, especially of lions, and a great many irresponsible statements have been made and articles written in local papers by critics who have no claims to a knowledge of the facts. Their assertions must have been based on their vivid imaginations alone, as for the most part they live great distances from, and are quite out of touch with, the game reserves; they even dwell in a totally different climate above the escarpment, but nevertheless have loudly voiced the statement that carnivora will soon overflow from the reserves and will become a danger and a menace to the white inhabitants of

the highveld. Interested motives may or may not have played their part in inducing some of these gentlemen thus to decry game preservation. No doubt there are many who previously earned a livelihood by killing game to whom it seems hard that their means of livelihood should be taken away from them and that the reserves should be closed to their further efforts in this direction, especially in view of the vague rumours as to the increase of game which have reached their ears; but it must be recognized, I think, that in a country like the Transvaal, the day of the irresponsible hunter and of the pioneer traveller, useful men as they both were in their time, is at an end, and that both must be content to push further afield in order to discover new wilds to conquer, and that the big game shooting of the future must proceed on other lines, if the fauna is to be kept in existence and not merely to become a memory of the past.

But to return to the carnivora, it seems surely obvious that the more the game increases within the reserves, the less object can there be in the carnivora seeking a precarious livelihood outside. Under the old system, the scarcity of game had no doubt caused such animals as lions to become, in the absence of their natural food, a serious danger to travellers, especially when the latter were accompanied by transport animals. Even during the war one or two instances did occur of men being carried off and killed by these animals. At present such a creature as a man-eating lion within the reserves is unknown, and there is not one single authentic case of a native having lost his life within the last three years by these animals, although their villages are never fenced, and many of their huts stand solitary in lonely parts of the bush. Nor have I ever observed any particular precautions taken in any way against wild beasts. The explanation is a sufficiently simple one; game being strictly preserved and the carnivora having no difficulty in obtaining natural food, the latter give man and all his works and belongings as wide a berth as possible. The bag of predatory animals is besides no inconsiderable one, there having been returned in the last two and a half years as killed: 11 lions as compared with 3 reported in the two and a half years immediately preceding, when the country was free to anyone, and as a matter of fact full of armed men, both Europeans and natives; 28 leopards, 12 cheetahs, 52 hyenas, 55 wild dogs, 29 large crocodiles, besides a very large number of smaller carnivora. These figures represent animals of which some token has actually been brought in to prove its death, and do not include the very large numbers which escaped badly wounded in

the dense bush, in many cases no doubt succumbing to their injuries. Even if the numbers of the beasts and birds of prey were not systematically kept down, it is a mere fallacy to suppose that they could or would ever increase in sufficient numbers to threaten the extermination of the game, if the latter can only escape persecution at the hands of the white man, or the black man equipped with the former's weapons. For instance, lions are known to give birth in their wild state to three cubs, and of these, from various causes, some never reach maturity; possibly they die in teething, as it is rare to see a lioness with more than two well-grown cubs, whilst often apparently but one out of the original three is successfully reared. Some natural law must of necessity exist to keep within bounds the numbers of such destructive animals, otherwise in course of time they would in all parts of Africa become more numerous than the game on which they prey, as they were absolute masters of the situation in uninhabited districts before the advent of European sportsmen; the few scattered natives they happened to meet never interfered with them, and they would have exterminated all the wild animals which they were capable of killing, and would have been reduced to prey upon each other, with the final result of the battle of the Kilkenny cats. If we take any district, however, which may be said to have been in the hands of Nature from time immemorial until within the last few years, we find that no such catastrophe has occurred; the balance of Nature having been maintained in such a way that, although lions might be numerous, their numbers have been kept down by a natural law to a figure strictly proportionate to that game on which they lived. The same applies to the wild dog, that destructive though interesting creature, who is perhaps a foe more deadly to the game than the lion or the leopard, as hunting with extreme sagacity and in troops, he runs his game both by speed and by scent, and worst of all, if unable to finish at a meal what he has killed, he never returns to it, but slays afresh. These animals usually have no more than three or four whelps at a litter, though from the fact that the young of several mothers are not infrequently found in the same earth, it has sometimes been erroneously supposed that as many as twelve came into the world as the offspring of one female; but were this the case, this animal would long ago have increased beyond all bounds and limits, and would have, like the lions under similar circumstances, years ago become immolated by internecine strife. So far as the game reserves are concerned, it is certain that the number of lions has not increased, and the number of wild dogs has

considerably decreased in the last three years ; so much so that a troop which within my knowledge once numbered over forty does not now muster more than ten individuals, and has become exceedingly timid into the bargain.

As to the practical benefit accruing from the preservation of big game in the country apart from the merely sentimental point of view, it must be remembered that all those large animals have a very real monetary value of their own. There is the waterbuck, whose skin forms perhaps the best rawhide ropes that can be made, and also furnishes excellent shoe leather ; the sable antelope, from whose hide are cut the most enduring lashes for waggon whips, which fetch as much as 15*s.* each. Again, the giraffe-hide equally furnishes this and other articles. From the skin of the hippopotamus and rhinoceros are made the universally-used hand-whip or sjambok of South Africa, and one could go on enumerating the uses to which one part or another of almost any one of these animals can be put. I say nothing of the ostrich nor the elephant nor the zebra. The future possibilities of the latter as a servant of man may be very great, but taking them generally, one with the other, it is certain that the market value of the hides, horns, and flesh of each large antelope is fully £12, so that with a good stock of game once fairly established and reasonably protected, it can be easily seen that a very considerable asset is at hand. It should also be noted that when a man shoots for profit it is not difficult to accomplish this object. Further, the game from the reserves will in time no doubt overflow on to private and other land where it is not unduly persecuted, and so in time we may hope gradually to restock much of the country with such species as were once indigenous to it.

Comparing our Transvaal game with that of other parts of Africa in which I have travelled, some at that time virgin countries so far as the white hunter is concerned, I consider that in a few years the Transvaal will be able to compare favourably with any one of them. But there is no doubt that had the matter not been promptly taken in hand three years ago, we should have been in the position of having no fauna left at the present time. Animals are entirely free from disease, and are thriving and doing remarkably well.