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NOTE.—There are many subjects in Africa, such as Racial Characteristics, Political and Industrial Conditions, Labour, Disease, Currency, Banking, Education, and so on, about which information is imperfect and opinion divided. On none of these complicated and difficult questions has Science said the last word. Under these circumstances it has been considered best to allow those competent to form an opinion to express freely in this Journal the conclusions at which they themselves have arrived. *It must be clearly understood that the object of the Journal is to gather information, and that each writer must be held responsible for his own views.*

THE TRANSVAAL GAME RESERVE

AN ANIMAL SANCTUARY FOR THE UNION

FOR the past twenty-eight years a portion of the N.E. Transvaal, adjoining the Portuguese border, has been maintained as a refuge for the relics of the various species of wild animals which once roamed over the whole of South Africa.

It is interesting to note that the Transvaal has the credit, in Africa, of having been the first State to realise the importance of protecting wild life. The International Conference upon faunal preservation in Africa was held in the year 1900, and as a result of its deliberations there came into being the game laws and game sanctuaries now usual in all European possessions; but already, two years previously—in March 1898 to be exact—the Transvaal Government had set aside part of the present Game Reserve as a sanctuary in which it was forbidden “to hunt, shoot, seek, or in any way to disturb, intimidate, chase, or drive any game or birds in the Game Reserve above mentioned” (Proclamation by the State President, March 26th, 1898).

NATURAL FEATURES

The country in which the Transvaal Game Reserve is situate is known as the Low Veld or Bush Veld. In the character of its *flora*, its *fauna*, its soil and its climate, it widely differs from the high inland plateau which it adjoins, and, little known as it is to the greater number of the South African public, some sketch of its natural features may not be out of place.

The Low Veld is, roughly, contained between the Lebombo Hills on the east and the Drakensberg Mountains on the west, and gradually rises in height from 400 feet above sea-level at the base of the former to some 2,000 feet at the foot-hills of the Berg. It lies between the 22nd and 26th parallels of south latitude, and the 31st and 32nd meridians of east longitude, being thus generally subtropical in climate.

Although, viewed from the edge of the Drakensberg escarpment, towering 4,000 feet above it, all the country has the appearance of a level, bush-covered plain, on nearer acquaintance it appears as a series of undulating ridges and steep-cut watercourses, clad in a garment of secondary forest, larger timber often lining the banks of the dry river beds. Below the 1,200 foot level, though still remaining what is known as "savannah" country, the forest becomes thicker, the trees more stunted, acacias more and more taking precedence over other forms. Features here are large outcrops of granite or basalt, which, like sentinels on guard, stand at intervals of every few miles, and serve as the strongholds for colonies of baboons, as well as for refuges to the charming little Klipspringer antelopes.

A few large perennial streams, flowing from west to east, drain the country—the Limpopo, Pafuri, Letaba, Olifants, Sabi and Crocodile rivers. In addition there exist a multitude of tributary watercourses, varying from the size of considerable rivers to that of small drains, which, though once perennial perhaps, now, owing to the progressive desiccation of the country, flow, after a deluge of rain, for a few days only. In the larger of these, during the dry season of the year, water

is often to be found either in stagnant pools or by digging in the sandy beds.

The soil, on the whole, is shallow and rocky, consisting of, first, a foot or two of rather gritty earth, then several feet of desiccated granite, superimposed upon solid archaic granite rock; but the tendency of the soil is to become both richer and deeper as the foothills of the Drakensberg are approached.

By the end of May the grass, which grows to a height of three or four feet during the rainy season, becomes brown and dry; and from June, 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 of smouldering wood and scorched trees in their track.

The heat is greatest from November until March, the hottest period being from the beginning of December until the end of January, when the thermometer has been known to show as much as 120° Fahr. within its screen; but the temperature usually falls towards early morning to 75° or even less.

The rainfall, which averages about nineteen inches, is usually greatest in February and early March, while from mid May till mid October, with the exception of one or two light showers, there is no rain at all, and the conditions are then pleasant, with a maximum shade temperature seldom exceeding 85°, and a minimum, which in June and early July, in the neighbourhood of the larger rivers, sometimes even records a few degrees of frost during the hour or so immediately preceding sunrise.

Malarial fever is prevalent throughout, and is at its worst towards the close of the rainy season—March and April. Blackwater fever, that little understood and deadly branch of malaria, fluctuates according as the season is wet or the reverse; but it usually claims a few annual victims.

A few remarks may here be interpolated upon malarial fever, of which the writer has had very considerable experience, both in the country under review and in other more fully tropical regions of Africa.

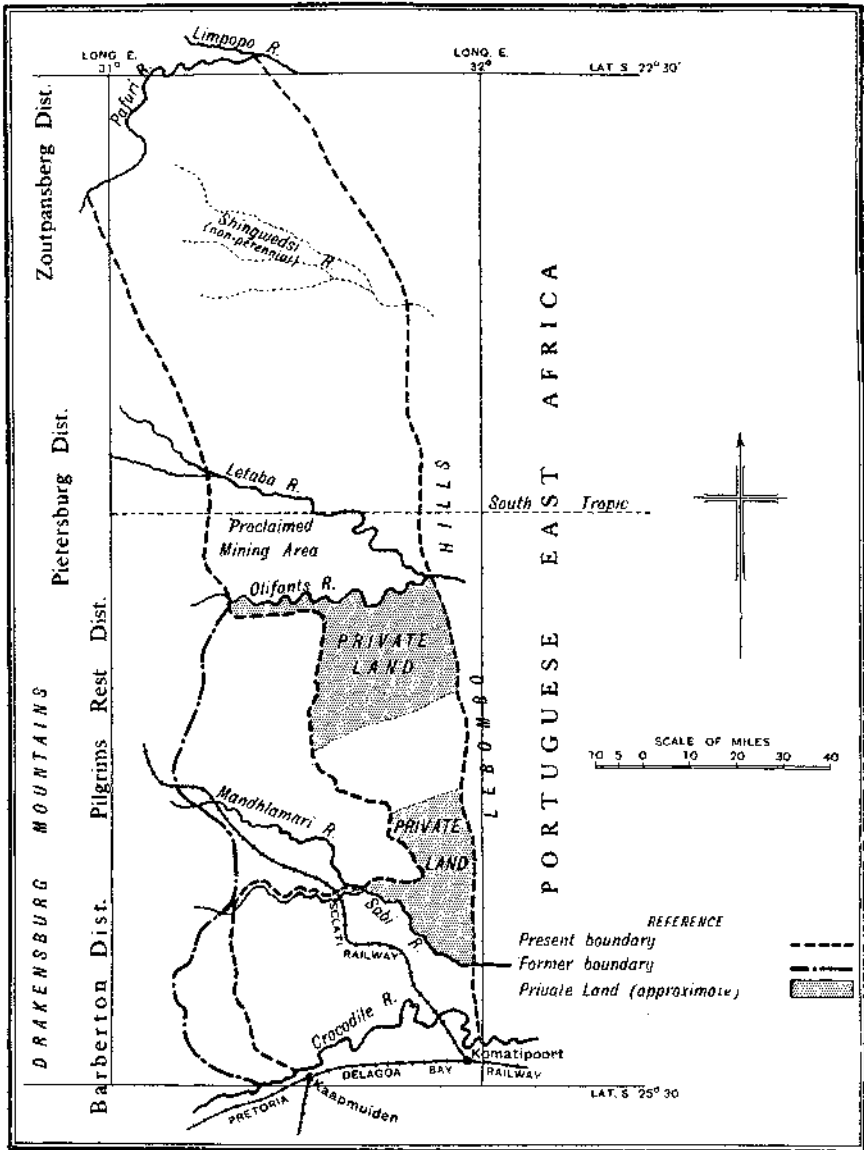
Twenty or more years ago, the Low Veld, between September and May, was regarded with positive terror by the whites of

the plateau country; it was said to be "certain death" even to venture down there during the summer months. The experiences of the staff of the Game Reserve and others have proved the fallacy of this extreme view. The former have lived under the hardest conditions in all parts of the fever area, if not with impunity, at least without the immediate disastrous results predicted. Their experience has, in fact, been much the same as that of other officials scattered through the various European possessions of East, West and Central Africa.

Partly from their example, and partly because there has been a succession of abnormally dry and consequently fever-free summers of late years, added to the active advertisement of those with land to dispose of in the low country, the pendulum has swung right to the other side of the clock. It is sometimes stated publicly that "the country is just as healthy and in some ways more healthy than any other part of the Union." Such statements as the latter are equally as ridiculous in one way as the old idea of certain death was in another.

It is said, for instance, that with proper housing, drainage, cultivation, etc., fever will be eliminated. Why? Fever can only be eliminated either by getting rid of the source of the infection or of the carrier. The former, as is well known, is the blood of practically the whole native population, and I doubt if even the strictest segregation would succeed entirely in expatriating the latter from the Low Veld. As regards the carrier, the mosquito itself, Johannesburg and Pretoria may be regarded as having attained to a degree of civilised amenity which even the most optimistic promoter of Low Veld "interests" can hardly anticipate for the latter in our time, and I have yet to learn that the mosquito has been eliminated from either of these cities. That the *anopheles*, the fever-bearing variety, does not flourish in the plateau country is a mere detail. Its elimination from the Low Country will, I venture to predict, prove a tougher problem than that of the *culex* from our plateau towns.

Nor is to be hoped that the erection of mosquito-proof houses is going to solve the problem. Even supposing that mosquito mesh always remained, under stress of veld con-



AREA OF TRANSVAAL GAME RESERVE.

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ditions, as perfect as when put up, I have personally never yet known a mosquito-proof bungalow which entirely kept out mosquitoes; the best it can do is to mitigate the annoyance of these and other insects, not to annul the chance of fever. Nor is it to be expected that the hard-working settler of the future is going strictly to confine himself within his insect-proof house nightly before sundown.

Apart from fever altogether, which is an infliction that any reasonably strong and healthy man or woman can learn to endure philosophically, the climatic conditions of atmospheric humidity in the summer, as apart from actual rainfall, and of great heat, are not conducive to the building up of a stalwart white race. No man, not even the strongest, but deteriorates physically after a few years spent under tropical conditions without frequent change to a temperate climate. The effect upon women is still greater, and white children ought never to be brought up under such conditions; for body and brain without doubt lose sap and vigour.

The Low Veld is, climatically, a part of tropical Africa, and the sooner it is, as regards all portions of it below the height of, say, 1,500 feet, recognised as that, and as being essentially a black man's and not a white man's country, the better it will be for the latter.

Horse sickness is a scourge which attacks horses and mules practically throughout the year, and all such animals must be immunised if they are to remain alive for more than a few weeks.

As pointed out at the beginning of this article, the Sabi Reserve was first born in 1898. During the period of the South African War it naturally lapsed; but immediately afterwards it was once again proclaimed, and in 1903 received important additions, designed both to protect certain species not included in the old reserve, and to allow of wider migratory space for the herds. A warden and rangers were appointed, together with an adequate staff of native assistants, to see the law carried out in fact.

When all the additions were complete, the Game Reserve stretched from the Crocodile River in the south, all along the Portuguese boundary, to the Limpopo and the Rhodesian

border in the north, and from the Portuguese boundary in the east nearly to the foothills of the Drakensberg in the west; an area of some 200 miles by 60.

None of this country had ever been permanently inhabited by whites, and the native population, except in the extreme west, was scattered and poverty-stricken, in fact semi-nomadic, as their livelihood had always depended chiefly on the game. A series of drought years further reduced the already scanty population of the eastern areas, which sought better-watered country to the westward, or in Portuguese East Africa, across the Lebombo Hills.

Faunally, by far the richest part of the whole Reserve was that lying between the Sabi and Olifants rivers, where the animals had to a certain extent been protected by the greater inaccessibility of the area as compared with the older part of the Reserve, and, like the latter, by the interposition of tsetse fly belts before 1896. Unfortunately a great deal of this land had, some years before the South African War, been surveyed into farms, and given out to burghers, who, in turn, had disposed of their property to various Johannesburg land and mining companies.

There being, however, no demand for low country land at the time of the proclamation of the Reserve, the companies were willing enough to allow Government to look after their property at no cost to themselves, to control the natives and so forth; and thus the quiet years passed, the game all the time steadily multiplying free from the attacks of man.

For a good many years after its creation, the Game Reserve had to be administered with the single-minded purpose of renovating the vanishing species of indigenous animals, some of which, notably the Black and White Rhinoceros, the Elephant and the Eland, had entirely or practically disappeared, while others, such as the Buffalo, the Giraffe, the Kudu, and the Roan Antelope, were within measurable distance of total extermination.

When, however, about the time of Union, the various species had secured for themselves a good stable footing, and some of the vanished ones, such as the Elephant and the Eland, had begun to trickle back from neighbouring Portu-

guese territory, it began to be felt that some ideal beyond that of mere preservation of species for scientific and sentimental ends was desirable. It was realised that the public, who had been paying, not perhaps exorbitantly, but to the extent of some £4,000 or £5,000 a year for the preservation of the fauna, had a right to see something as the result of their money.

The whole situation needed stabilising. The Game Reserve contained a good deal of private land, and although, hitherto, there had been little demand for such a thing in the eastern fever country, it was more than possible that this might come, and that the rights of private owners would then be asserted. Then, although pretty extensive and unrestricted prospecting, before the days of the South African War, had largely demonstrated the absence of payable minerals, a new generation had grown up, and on the principle of distant fields always being green, there would be growing demands to secure concessions for mining rights, especially on the unsurveyed Government land. The Game Reserve existed in virtue of a simple Proclamation in the Government Gazette, and it required merely another simple Proclamation to undo all the patient building work of many years.

Clearly, the only way at once to secure the future of the *fauna*—and, it may be added, the natural *flora* also—as well as to make the preservation of both a real asset to the public of this and future generations, was by the establishment of a great National Park under the Union Government, thus lifting it above purely local and private interests and ambitions. But, equally clearly, a National Park containing any private land would be an anomaly, not to say an impossibility. Unfortunately it was not practicable to cut out all the private land by a mere sweep of the pen; there were alternating blocks of private and of Government land, besides many isolated farms of the one, like islands, as it were amid a sea of the other, so that something in the nature of a general expropriation at agreed values, or an exchange for Government land existing outside, was indicated.

A movement was on foot to endeavour, at the Capetown conference, to have the Reserve included in the Constitution

under the Union Government; but in the discussion of more important things it was overlooked, and in 1910 it came under the control of the Transvaal Provincial Council along with the general game preservation of the Province, from which it should be, and in fact is, a thing totally apart. The fact of the Reserve being now separated from the Central Government made the matter of treating with private owners more complicated. The Central Government, as represented by the Lands Department, possessed or were the people to approach in connection with the land upon which the animals existed; but the Provincial Council, so to say, owned the animals themselves, and controlled all legislation in connection with them.

Thus, just when the idea of making the Reserve a great national asset had begun to take definite shape, it was carried a step further away from realisation.

The matter did not drop, however, and tentative discussion on the subject went on with the private owners as to ways and means, a very few private farms being, in fact, actually exchanged, and very likely something definite would shortly have evolved, when world hostilities broke out in 1914.

The Great War, which upset so many more important things on the earth, did not even spare so minute an institution as the Game Reserve of the Transvaal. Half the white staff went on active service, and for reasons of economy, not only were not replaced, but the native staff reduced by about 50 per cent.; with the result that things deteriorated generally. Poaching by white men and natives, hitherto infrequent, became general, while the larger carnivora, no longer kept in check as before, increased greatly in numbers.

In 1916 and the early part of 1917, a Commission of Inquiry sat, and reported upon the Game Reserve. A great deal of evidence was taken and the working and results thoroughly gone into. As the result of a very favourable report issued in the form of a Blue Book in 1918, the staff was increased back to the old level. Serious though the damage had been, especially between 1916 and 1919, both to the animals and to the general *moral* of native staff and resident natives, the previous good work could not in the time be entirely destroyed,

and from 1919 onwards it has been possible to resume administration much on the old basis.

Although, however, things began more or less to function normally, it was soon obvious that a different atmosphere to the pre-war one existed in the country. Land had everywhere largely appreciated in value. For the first time there began a demand for the opening up of the low country fever belt. A succession of unusually dry seasons, with consequent diminution of malaria, further encouraged the advent of white settlers. The native problem was insistent; the Bantu of the Low and Middle Velds, existing more or less still under their old tribal systems, had increased largely in numbers during twenty years; there were no native reserves nor native locations of any kind in the eastern low country of the Barberton and Lydenburg Districts, and many of the squatters on Government land lying just outside the Reserve, newly acquired by whites, began to press into the Reserve, and were increasingly difficult to stop from doing so. Government began to see the necessity of providing some purely native area. The companies owning the great bulk of the private land within the Reserve became insistent upon its excision therefrom, realising that its continued inclusion might be detrimental to such schemes of development or sale as they may have had under consideration. The National Park scheme again began to come to the front, and it was hoped that some working plan based on mutual concessions might be arrived at.

Finally, after a good deal of preliminary discussion, and towards the end of 1923, Government excised the whole western area of the Reserve between the Olifants River on the north and the Crocodile River on the south, in extent somewhere in the neighbourhood of a million and a half acres. When this had been done, there still remained about seventy farms, private property, in the area continuing to be Reserve. It was contemplated as possible to acquire these for Government by purchase or exchange, so that, with the Government farms and unsurveyed Government land adjacent to and mingled with them, they might form a permanent homogeneous and connected National Park under the Union Government. Meantime a Bill affirming the establishment of this

Sanctuary, together with a code of regulations for its proper control when established, had been drawn up, and is at the present time ready to be submitted to Parliament, once the vexed question of the private ownership has been satisfactorily settled.

Thus the matter rests to-day. Unless a settlement can be arrived at it would appear that the scheme as a successful project is doomed; for the reservation of a number of minor blocks of Government land, surrounded on all sides by private land, with inadequate migratory space for the animals, would be a great impediment to administration, would be a satisfactory solution neither from the point of view of an efficiently controlled Sanctuary, nor from that of the surrounding private owners.

The natural inhabitants of the Reserve at present comprise all those animals indigenous to this particular part of the country, with the sole exception of the White or Square-nosed Rhinoceros, exterminated at least fifty years ago.

From a sight-seeing point of view by far the most valuable part of the Reserve is that lying between the Olifants and the Crocodile rivers. Here great masses of extraordinarily tame creatures may be seen at quarters quite close enough by photography, without the necessity of making use of any of the wiles common to the hunter. North of the Letaba River lies the great area of unsurveyed Government land, included in the Reserve and formerly known as "the Shingwedzi Reserve." It is a region waterless through much of its extent in the dry season, swampy in the rains, owing, in many parts of it, to there being no gradient sufficient to drain the water from the clay soil. The greater part is covered with mopani forest or scrub of the same nature. Although it contains species not found, or only existing as visitors, in the former "Sabi Reserve," the Elephant, the Rhinoceros, the Eland and the Inyala, it is on the whole far from being on the same plane as a favourite faunal resort. Even after more than twenty years of strict preservation one may still travel for many miles without seeing any sign of larger wild life, and it is probable that not only relatively but actually there is less than 10 per cent. of the animals present in the

country south of the Olifants. There being practically no native inhabitants at all—none whatever between the Letaba and the Pafuri resident—and there being no native poaching to speak of either from the Portuguese or the Transvaal side, the former indeed still forming a “feeder,” the relative dearth of animals must be put down to natural causes connected with pasture and lack of water. It is what would be called an “excellent game country” from the point of view of a hunter; but as a show place with herds always on view for the sightseer or naturalist it cannot bear comparison with the southern areas.

Elephant.—In 1902 they were to all intents and purposes non-indigenous. About eight were shot north of the Letaba during the South African War and the remainder took refuge in Portuguese territory, from which it was a good many years before they once more made a hesitating appearance. To-day a breeding herd of at least forty animals is continually present in the Letaba area, in addition to various detached troops, which wander as far north as the Shingwedsi River and even beyond, and south at certain seasons to some twenty miles south of the Olifants.

Black Rhinoceros.—Several still exist in the neighbourhood of the Shingwedsi River, where their tracks are not infrequently seen, and where they have actually been encountered by members of the native staff.

Hippopotamus is present in all the larger rivers; but the species does not tend to increase, consequent upon the habit of the animals to travel up and down stream, migrations which frequently take them out of the Reserve, especially into Portuguese territory, where their shrift is a short one. A good many are also destroyed, where the opposite bank of the river is outside the Reserve, in the Transvaal, owing to their habit of landing at night and doing harm to cultivation. It would not take a great effort to exterminate this species.

Giraffe, which had been reduced in 1902 to such small numbers as to be within sight of extinction, have increased satisfactorily and rapidly, and although some of their best breeding grounds were cut out by the 1923 excision, a very considerable stock may still be seen in various parts of the Reserve, where they are tame and readily visible.

Buffalo in 1902 were believed to consist of some fifteen individuals only. Since that year they have increased in about the same degree as domestic cattle might be expected to under reasonably favourable conditions, and are well spread over much of the area south of the Sabi River, and even found now in some localities north of it.

Zebra is prolific and numerous in all except the more thickly bushed portions of the country. The type found is scientifically interesting, as tending to upset the theory that Burchell's Zebra could be classified into a number of species in accordance with the markings. Here, in the same herd, may be found animals which are fully striped right down to the fetlocks and round the barrel, with others not striped at all below the knees and with stripes not coming much more than half-way round the body. Shadow markings are present always though in varying degree. Possibly the Zebras found in the N.E. Transvaal exist just on the dividing line between the very fully striped animals of Central Africa, and the very lightly striped animals of the south.

Warthog are naturally numerous and prolific; but are among the most sensitive of all animals to human persecution. They are the first of the *fauna* to disappear where the natives are hunters, since they are easily run down and killed with dogs. It is, in fact, easy to decide whether the inhabitants of a certain village are keeping the law or not by the presence or absence of Warthogs in the neighbourhood. They have also many natural enemies.

Bushpig are numerous wherever the dense covert which they adhere to by day is present. This species is well able to take care of itself, and is in no danger of extinction by either human or natural foes.

Of the Antelope tribe, *Eland* have, within the last ten years, made their hesitating appearance in the northern area and are gradually extending their habitat. A few may have lingered in the Shingwedzi country area after the South African War; but it seems more probable that the several quite satisfactory herds existing to-day are the descendants of isolated stragglers from Portuguese East Africa.

Inyala have been reported as existing in the thick bush

near the Pafuri River in the extreme north; but so far none have been seen in the flesh. They must be regarded as recent immigrants from Portuguese territory, where they were formerly numerous. Probably they formerly existed near the Pafuri River, and were exterminated there previous to the South African War.

Kudu.—Nothing in the general increase of the larger and rarer animals has been more satisfactory than the manner in which this species, very scarce in 1902, has bred and multiplied. In all country suitable to them Kudus may now always be seen, displaying a degree of confidence which is most unusual in these shy creatures.

Roan Antelope.—This is really a Middle Veld buck, and the species favours the western and higher areas of the Reserve at the present time. The 1923 excision deprived it of some of its favourite breeding grounds. In 1902 Roan had been reduced to a few score of individuals very much scattered over the western areas between the Shingwedsi and the Crocodile rivers; but at the present date, though by no means numerous, the species is on quite a safe footing, and may readily be encountered in its favourite haunts in the Reserve.

Sable Antelope are very numerous in most parts of the Reserve, especially between the Sabi and Olifants rivers. South of the former and north of the latter they are much rarer.

Blue Wildebeest.—This is the most numerous species at present in the Reserve. They have no natural enemy except the lion, and, unlike Waterbuck and Kudu, Blue Wildebeests cannot be hunted down by native poachers with dogs. The extreme tameness of these animals, coupled with their large numbers and quaint appearance and manners, must always form a considerable attraction for the ordinary visitor, who is able to look at them at close quarters with little more effort than is required to view animals confined in a Zoological Gardens.

Waterbuck is, next to Wildebeest, probably the most numerous antelope in the Reserve. The species is very prolific owing apparently to the preponderance of females, but has so many enemies, and is so easily a victim to even a single native

poacher with one small dog, that since shooting by white men has been stopped by the Proclamation of the Reserve it has dropped back to second place.

Tsessebe.—Seen in small herds of from six to ten in the more open country; these animals may always be inspected from quite close quarters; possibly because, having no experience of fire-arms, and relying upon their exceptional swiftness of foot, they consider it safe to permit of closer approach than do other types.

Impala rank among the most graceful antelopes in Africa, and are also one of the most numerous of the indigenous species of the Reserve. The dense bush which forms their natural habitat did much to preserve them in former days from the extermination which befell more open country loving types; and when the Reserve was first proclaimed they were perhaps the most numerous of all species; now they have been exceeded in the race by Wildebeest and Waterbuck, the *Impala* being confined to such areas only as contain the special thorn bush the leaves and fruit of which form its chief diet.

Reedbuck are found in all favourite spots. This is another type with many natural enemies, and among the first to be exterminated by man.

Bushbuck are not naturally numerous in the low country. The only portions of the Reserve where they were found in large numbers were excised in 1923.

Klipspringer.—This delightful little antelope is found all along the Lebombo, and also on most of the isolated kopjes in the Reserve.

Duiker, *Steenbuck* and *Sharpe's Steenbuck* are found distributed through localities natural to them; but taken as a whole the country east of the lower foothills of the Berg is a disappointing one as regards the smaller antelopes. All the best small antelope country was given up in 1923.

Mountain Reedbuck (*Rooi Rhebok*).—All except perhaps a very few individuals of this species were lost to the Reserve by the 1923 excision, with the cutting out of practically all their favourite country.

Natal (or Red) Duiker.—This species was entirely lost to the

Reserve by the 1923 excision, as it only existed in one or two of the extreme western areas of the southern Reserve.

Carnivora comprise lions, leopards, chitas, spotted hyenas, African hunting dogs, two species of jackals, two species of genets, civet, caracal, serval, ratel, Cape otter, and at least half a dozen species of mungoose.

Of *Rodents* there exists the porcupine, two species of squirrel, two species of hare, the curious cane "rat," and a very large assortment of the genus *Mus*.

Insectivores include the ant bear, the scaly ant-eater (*Manis*) and several shrews. There are also a good many bat types, including a fruit-eating species, the most common being the horse-shoe, the leaf-nose, and the slit-face (*Rhinolophus*, *Hipposiderus* and *Nycteris*).

Bird life is wonderful, nor does space admit of even an attempt to enumerate the multitudes of *Passeres* whose appearance and notes constantly charm eye and ear.

Most striking of the larger birds of prey is the stately martial hawk eagle, with its white breast and its mighty sweep of wing. The toll which this splendid bird, in common with all the other *Raptores* with which I am acquainted, takes of snakes and of rodents is not, I am sure, at all appreciated by the public generally, who generally think of our useful birds of prey in connection with the chicken run.

The pools and rivers swarm with fish, including many rare and quaint types.

The experiment—tried for the first time in 1923—of running excursion trains through the Reserve during the winter months, and thus allowing visitors to see something of the wild animals, has proved to be very popular. The trains have usually remained one night in the Game Reserve, when a camp fire and impromptu concert has been held, while by day visitors have been able, under guidance, to go for short walks into the bush. These trips, limited as they have been, have proved a revelation as to the popularity of this type of natural Zoological Gardens among the general public. The keenest interest and the greatest excitement has been shown in the most ordinary sights and scenes. There is undoubtedly a very great proportion of the South African public, including nearly all the

ladies, who only await instruction and opportunity of seeing for themselves to become enthusiastic supporters of faunal preservation.

With the institution of a National Park, and the sense of stability and permanence under the Union Government which it would bring, the construction of roads, with suitable rest-houses and camps at short intervals, would be at once initiated. Motor excursions could then be run in collaboration with the S.A.R., and trips of varying length within the National Park would be advertised in advance. Catering, etc., could no doubt be undertaken in cases where visitors desired it; possibly, as in the Yellowstone Park, hotels under official control might even make their appearance at a later date. Guides would be furnished by the staff of the Park, who would likewise afford suitable protection to visitors from the risks of the wilderness. No doubt things would develop very much on the lines of the American Nature Parks, and the Sanctuary as a pleasure resort would become more popular year by year. Not only the wonderful animal life, but the interesting and beautiful *flora*, and the striking and novel type of wild scenery, would offer ever-increasing attraction, especially to the town dweller in search of rest and change. Nor is it too much to expect that as the ease and comfort with which this animal paradise may be reached and seen becomes more widely known, visitors from other parts of the world may like to spend a holiday in South Africa with the central object of viewing this unique spectacle under perfect conditions of weather (May to September) and surroundings.

There has always been and doubtless always will be some trouble with poachers, mainly natives from Portuguese territory, whose incursions are always in inverse ratio to the current strength of the staff; but given an adequate protective force, which the Game Reserve—Cinderella of Departments—has never yet possessed, there should be little difficulty in coping with this. Of course the possession of fire-arms within the Park by any except members of the staff must be rigidly prohibited; with this proviso, there will be no more difficulty as regards white law-breakers from outside than there has been in the past.

For the scientist, the outdoor naturalist and the nature photographer the opportunities offered would be unrivalled. Few places exist within such easy reach of civilisation where a glimpse of the Pleistocene, with the animals scarcely more nervous of man's intrusion than it may be surmised they were in that far-away epoch, may be obtained at the cost of a few pounds.

In former days a very large portion of this country was infested by tsetse fly—either *G. morsitans* or *G. pallidipes*, whose habits are very similar. The presence of the fly undoubtedly was the main factor in saving the larger wild animals from complete extinction before 1896, since animal transport being banned from all but the more open areas, hunters were considerably handicapped in their work of destruction.

The year of the rinderpest epidemic in 1896 also marked the close of the fly era; for since that date the insect has completely disappeared. There has been much discussion as regards the determining cause of this phenomenon; but up to the present no satisfactory explanation has been offered, though a guess may be hazarded that it was due to some parasite or natural enemy of the fly itself or of its ova, for whose increase the rinderpest epidemic may in some fashion have been responsible.

In Sir P. FitzPatrick's *Jock of the Bushveld* an excellent description may be found of conditions as they existed up to the middle 'eighties.

The late Mr. W. Sanderson of Logogote, who, with his two brothers, Messrs. Glynne, Abel Erasmus, D. Schoemann and a few others, was among the earliest hunter pioneers of the country under review, dated his experience from about 1874. At that period the country was almost entirely without human inhabitants, constant Swazi raids during the 'sixties having driven away or exterminated the population, and it had for eight or ten years been given over to wild animals, which, excepting for disturbance by native and half-caste hunters armed with muzzle-loading guns and coming from Delagoa Bay, roamed undisturbed.

Except that the game then extended right up to what is now the White River settlement, and that species such as

Rhinoceros and Eland, now vanished from the southern areas, were then numerous, Mr. Sanderson, shortly before his death in 1913, expressed the opinion that the ordinary types of game animals were little less numerous than he remembered them in the early days; which is, I think, a tribute to the facility with which wild creatures will increase despite all natural enemies, if only left alone by man. In 1902 an old native, one of the few who had known the country before the white men found it, volunteered the remark: "The game once covered all the country, now it is but a little handful, and soon we will not see it any more."

It is the aim of the National Park to fend off such a calamity, which would be vainly regretted by all once it had irretrievably taken place.

Unless a permanent institution on national lines is inaugurated, it is difficult to see how exploitation of the country and of the wild animals for motives of private gain can very long be deferred.

JAMES STEVENSON-HAMILTON.